RAILROAD GAZETTE

FRIDAY, OCTOBER 13.

MASTER CAR-BUILDERS' ASSOCIATION.

Report of Committee on the Revision of the Constitution.

Your Committee report that on examining the existing Constitution under which this Association is organized, they found that a thorough revision seemed to be required. While they can see no reason for changing the objects aimed at in the original organization of the Association, nevertheless many additional provisions seem to be required in the Constitution and By-Laws to promote its usefulness and insure its future success. They therefore submit for your consideration the following draft of a Constitution and By-Laws which embodies the amendments which in their judgment seem to be best suited to accomplish the purposes for which the Association was formed:

CONSTITUTION AND BY-LAWS OF THE MASTER CAR-BUILDERS' ASSOCIATION.

(As Revised by a Committee Appointed for the Purpose at the Annual Meeting held in June, 1882.)

ARTICLE I.—NAME.

SECTION 1. The name of the Association shall be "The Master Car-Builders' Association."

ARTICLE II.—OBJECTS AND LIMITS OF ACTION.

SEC. 1. The objects of this Association shall be the advancement of knowledge concerning the construction, repair and service of railroad cars by discussion in common, investigations and reports of the experience of its members; to provide an organization through which the members, and the companies they represent, may agree upon such joint action as may be required to bring about uniformity and interchangeability in the parts of railroad cars, to improve their construction, and to adjust the mutual interests growing out of their interchange and repair; but the action of the Association shall have only a recommendatory character, and shall not be binding upon any of its members or the companies represented in it.

ARTICLE III.—MEMBERSHIP.

SEC. 1. There shall be three classes of members, Active, Representative and Associate members.

SEC. 2. Any person holding the position of Superintendent of the Car Department, Master Car-Builder, or Foreman of a Railroad Car Shop, or one representative from each Car Manufacturing Company, may become an active member by signing the Constitution, or authorizing the President or Secretary to sign for him, and paying his dues for one year.

SEC. 3. Any person having a practical knowledge of car construction may become a Representative Member, by receiving a *written* appointment from the President, General Manager or General Superintendent of any railroad company, to represent its interests in the Association, provided that no Representative Member shall represent more than one railroad company. Such members shall have all the privileges of Acting Members, and in addition thereto, on all measures pertaining to the adoption of standards for car construction, or the expenditure of money, they shall each have one more vote for each thousand cars the company they represent owns. No railroad company shall have more than one Representative Member. In the enumeration of four, six or twelve-wheeled cars, four axles to count as one car. The dues of Representative Members shall be in proportion to the whole number of votes they are entitled to cast. Their membership shall cease if their appointment is revoked by any officer authorized to make it, or when such a member leaves the employ of the company by which he was appointed.

SEC. 4. Civil and mechanical engineers, or other persons having such a knowledge of science or practical experience in matters pertaining to the construction of cars as would be of especial value to the Association or to railroad companies, may become Associate Members on being recommended by three members not associates. The names of such candidates shall then be referred to the Executive Committee, which shall report to the Association on their fitness for such membership. They shall be elected by ballot at any regular meeting of the Association, held not less than six months after a candidate has been proposed, and five dissenting votes shall reject. The number of Associate Members shall not exceed twenty. Any Associate Member who shall fail to attend a meeting of the Association for three consecutive years shall cease to be a member. Associate Members shall be entitled to all the privileges of Active Members, excepting that of voting and being elected to office in the Association.

SEC. 5. All members will be subject to the payment of annual dues, which are assessed at each annual meeting to defray the necessary expenses of the Association; and each one signing the Constitution will be considered a member until a written resignation, from him, is received by the Secretary, unless expelled from the Association.

SEC. 6. Any member who, during the meetings of the Association, shall be guilty of dishonorable conduct which is disgraceful to a railroad officer and a member of the Association, or shall refuse to obey the chairman when called to order, may be expelled by a vote of two-thirds of the members present at any meeting held within one year from the date of the offence.

ARTICLE IV.—OFFICERS.

SEC. 1. The officers of the Association shall be a President, three Vice-Presidents, a Treasurer, Secretary, and six Executive members, who shall, together, constitute the Executive Committee.

ARTICLE V.—DUTIES OF OFFICERS.

SEC. 1. The duties of all officers shall be such as usually pertain to their offices, or may be delegated to them by the Executive Committee or the Association.

ARTICLE VI.—EXECUTIVE COMMITTEE.

SEC. 1. The Executive Committee shall exercise a general supervision over the interests and affairs of the Association, recommend the amount of the annual assessment, to call, to prepare for and to conduct general conventions, and to make all necessary purchases, expenditures and contracts required to conduct the current business of the Association, but shall have no power to make the Association liable for any debt to an amount beyond that which at the time of contracting the same shall be in the Treasurer's hands in cash and not subject to prior liabilities. All expenditures for special purposes shall only be made by appropriations acted upon by the Association at a regular meeting.

SEC. 2. The Executive Committee shall make a report of the proceedings of each of its meetings, such reports to be made accessible to all the members of the Association. It shall have the proceedings of the regular meetings of the Association published subject to instructions from the latter. It shall have power to withhold from the published proceedings papers and reports containing old matter, readily found elsewhere, those specially meant to advocate personal interests, those carelessly prepared or controverting well-established facts, and those purely speculative or foreign to the purposes of the Association, or any which in the opinion of the Committee are unworthy of publication; it being understood, though, that this discretion shall always be exercised subject to the action of the Association.

SEC. 3. Two-thirds of the members of the Executive Committee may call special meetings of the Association to be held after thirty days public notice thereof has been given.

SEC. 4. A majority of the members of the Executive Committee shall constitute a quorum for the transaction of business.

ARTICLE VII.—ELECTION AND APPOINTMENT OF OFFICERS AND TENURE OF OFFICE.

SEC. 1. The officers, excepting as otherwise herein provided, shall be elected at the regular meeting of the Association, held in June of each year, and the election shall not be postponed excepting by unanimous consent.

PRESIDENT AND TREASURER.

SEC. 2. The President and Treasurer shall be elected by written ballots by a majority of the votes cast, and shall hold office for one year, or until successors are chosen.

VICE-PRESIDENTS AND EXECUTIVE MEMBERS.

SEC. 3. The Vice-Presidents shall hold office for one year and the Executive Members for two years, or until successors are chosen. Three Vice-Presidents and three Executive Members to be elected each year; provided, however, that three of the latter shall be appointed by the President holding office at the time of the adoption of this amendment. The Executive Members thus appointed to hold office until successors are chosen at the annual meeting following.

SEC. 4. In the election of Vice-Presidents each Active and Representative Member may cast as many votes as there are Vice-Presidents to be elected. That number of votes may be given to one candidate or distributed among more, as the person entitled to cast them may choose. Executive Members shall be voted for in the same way. The three candidates for each of the offices named who receive the largest number of votes shall be declared elected.

SECRETARY.

SEC. 5. A Secretary, who may or may not be a member of the Association, shall be appointed by a majority of the Executive Committee at its first meeting after the annual election, or as soon thereafter as the votes of a majority of the members of the Executive Committee can be secured for a candidate. The term of office of the Secretary thus appointed, unless terminated sooner, shall cease at the first meeting, after the next annual election succeeding his appointment, of the Executive Committee organized for the transaction of business. Two-thirds of the members of the Executive Committee shall, however, have power to remove the Secretary at any time. His compensation, if any, shall be fixed for the time that he holds office by a vote of a majority of the Executive Committee. He may take part in any of the deliberations of the latter or of the Association, but if not a member of the Association, or if not entitled to a vote in it, he shall not have a vote in the meetings of the Committee.

TREASURER

SEC. 6. The Treasurer shall be required to give bonds to an amount which a majority of the members of the Executive Committee demand. No bill shall be paid by him for the Association, excepting for current expenses, until it has been certified by the person or persons authorized to contract it, and audited by the Executive Committee.

ARTICLE VIII.—COMMITTEES.

SEC. 1. At the first session of the annual meeting, immediately after the consideration of unfinished business, the President shall appoint a Nominating Committee of five members, who are not officers of the Association, and this Committee shall send the names of nominees for officers of the Association, to fill vacancies for the ensuing year, to the Secretary before the election of officers is in order, and they shall be announced by him as soon as received. The election shall not be held until the day after such announcement excepting by unanimous consent. Any three other members may nominate candidates for any office.

AUDITING COMMITTEE.

SEC. 2. At the first session of each annual meeting an Auditing Committee, consisting of three members not officers of the Association, to be nominated by any member who does not hold office, shall be elected in the same way as Vice-Presidents and Executive Members are voted for. This Auditing Committee shall examine the accounts and vouchers of the Treasurer and certify whether they have been found correct or not. After the performance of this duty they shall be discharged by the acceptance of their report by the Association.

COMMITTEE ON SUBJECTS FOR INVESTIGATION AND DISCUSSION.

SEC. 3. At each annual meeting the President shall appoint a Committee whose duty it shall be to report at the next annual meeting subjects for investigation and discussion, and if the subjects are approved by the Association the President, as hereinafter provided, shall appoint committees to report on them. It shall also be the duty of the Committee to receive from members questions for discussion during the time set apart for that purpose. This Committee shall determine whether such questions are suitable ones for discussion, and if so, they shall so report them to the Association.

COMMITTEES OF INVESTIGATION.

SEC. 4. When the Committee on Subjects has reported and the Association approved of subjects for investigation, the President shall appoint special committees to investigate and report on them, and he may be authorized to appoint a special committee to investigate and report on any subject which a majority of the members present may approve of.

ARTICLE IX.—THE RECOMMENDATION OF STANDARDS.

SEC. 1. Before any forms, dimensions, plans or principles relating to the construction or repair of cars are recommended for general adoption by railroad companies, the recommendation shall be put in writing, and a drawing appended, if the latter is required for a clear understanding of the subject. The recommendation shall then be submitted to the Association for discussion, and a vote shall be taken after the discussion to express the sense of those present in relation to the measure, and the names of the voters and their votes shall be recorded. Before such recommendations are finally adopted they shall be submitted to all the members entitled to vote for approval by letter ballot. To this end the Secretary, within three months from the time the vote of the Association is taken on such measures, shall send by mail to all members a copy of the proposed recommendation, with a report—to be approved by the Executive Committee—of the discussion and of the vote thereon, with a blank ballot. Such ballot to be filled up, signed and re-mailed to the Secretary, who shall count all the ballots received within sixty days from the date that they were sent to members, and he shall then announce the vote in such manner as the Executive Committee may prescribe. Recommendations securing two-thirds of the votes cast shall be adopted by the Association.

SEC. 2. No resolution, vote or other action of the Association shall be adopted or taken recommending railroad companies to use any material, machine, product of manufacture, or invention which they have no lawful right to use.

ARTICLE X—ANNUAL CONTRIBUTIONS.

SEC. 1. The amount of annual contributions of members shall be five dollars for each member, and in addition thereto each Representative Member shall pay five dollars for each thousand cars the company he represents owns; this amount to be subject to change by a vote of the Association on a recommendation of the Executive Committee. The annual contributions shall be due when the amount thereof is announced by the President at the annual meeting.

ARTICLE XI—AMENDMENTS.

SEC. 1. This Constitution may be amended at any regular meeting by a two-thirds vote of the members present; *provided*, that written notice of the proposed amendment has been given at a previous meeting at least six months before.

BY-LAWS.

TIME OF MEETING.

I. The regular meeting of the Association shall be held annually on the second Tuesday in June.

HOURS OF SESSIONS.

II. The regular hours of session shall be from 10 o'clock a. m. to 2 o'clock p. m.

PLACE OF MEETINGS.

III. The place for holding the regular meetings of the Association shall be determined by a majority of the members present.

QUORUM.

IV. At any regular meeting of the Association thirteen or more members entitled to vote shall constitute a quorum.

ORDER OF BUSINESS.

V. The business of the meetings of this Association shall, unless otherwise ordered by a vote, proceed in the following order:

1st. Calling the roll.
2d. Reading the minutes of the last meeting.
3d. Address by the President.
4th. Admission of new members.
5th. Announcement of annual dues.
6th. Unfinished business.
7th. Appointment of Nominating and other committees.
8th. New business.
9th. Election of Auditing Committee.
10th. Reports of committees.
11th. Reading and discussing questions propounded by members.
12th. Routine and miscellaneous business.
13th. Election of officers.
14th. Adjournment.

QUESTIONS FOR DISCUSSION, SPECIAL ORDER.

VI. Unless otherwise ordered, the discussion of questions proposed by members shall be the special order at twelve o'clock m. of each day of the annual meeting.

DECISIONS.

VII. Every question, motion, or resolution which shall come before the Association shall be decided, unless otherwise provided by these rules, by the votes of a majority of the members present entitled to vote, provided there is a quorum.

DISCUSSIONS.

VIII. No questions or discussions as to the regulation of wages, or the amount to be paid by the day, week or month, or the number of hours that shall constitute a day's work to employés, shall be allowed at the meetings of this Association.

IX. No patentees, or their agents, shall be admitted in the meetings of the Association for the purpose of advocating the claims of any patent or patentee.

X. No member shall speak more than twice in the discussion of any question until all other members who want to speak and have not been heard have spoken.

The reasons which have governed the Committee in making the changes and additions which they have reported, will be given as briefly as possible.

It will be noticed that no change has been made in the name of the Association, and in the opinion of the Committee none should be made. In Article II. the objects of the Association are set forth more explicitly and fully than they were before, and it is distinctly expressed that its action is not binding on the members or the companies they represent, but is intended to have only a recommendatory character.

Sections 1, 2 and 3 of Arcticle III. remain the same as they were adopted at the last meeting. Section 4 of that arcticle, defining the conditions under which Associate Members may be admitted, has been altered so as to subject the qualifications of candidates to a more rigid scrutiny and to oblige them to be nominated at least six months before being elected. They are also deprived of the right of being elected to office.

Section 5 is substantially the same as it was before, excepting that it makes members liable for dues until they send in a *written* resignation.

Section 6 has been added so as to give the Association the power to expel a member. Under the present Constitution it has no such right, and a person disposed to do so might obstruct the proceedings and there is now no adequate remedy.

The officers are the same as before, excepting that the number of Vice-Presidents is increased to three and six Executive Members are added, and an Executive Committee is created, consisting of all the officers of the Association, to "exercise a general supervision over its interests and affairs." The need of some such body is obvious. The Committee have tried to give it such authority as the performance of its duties required, and at the same time limit its action so as to prevent too lavish an expenditure of money or an exercise of its powers independently of the wishes or knowledge of the Association. To prevent the latter the approval of the Association is required to enable it to act on the most important matters, and it is also required to make reports of its action at each meeting. It often happens that members of Associations are kept in practical ignorance of what boards of direction and similar bodies created by them are doing, because such boards do not make adequate reports of what they do. The Committee have tried to guard against this evil.

In the election of officers the only changes are that the Secretary is made an appointee of the Executive Committee instead of an elective officer as heretofore. The object of

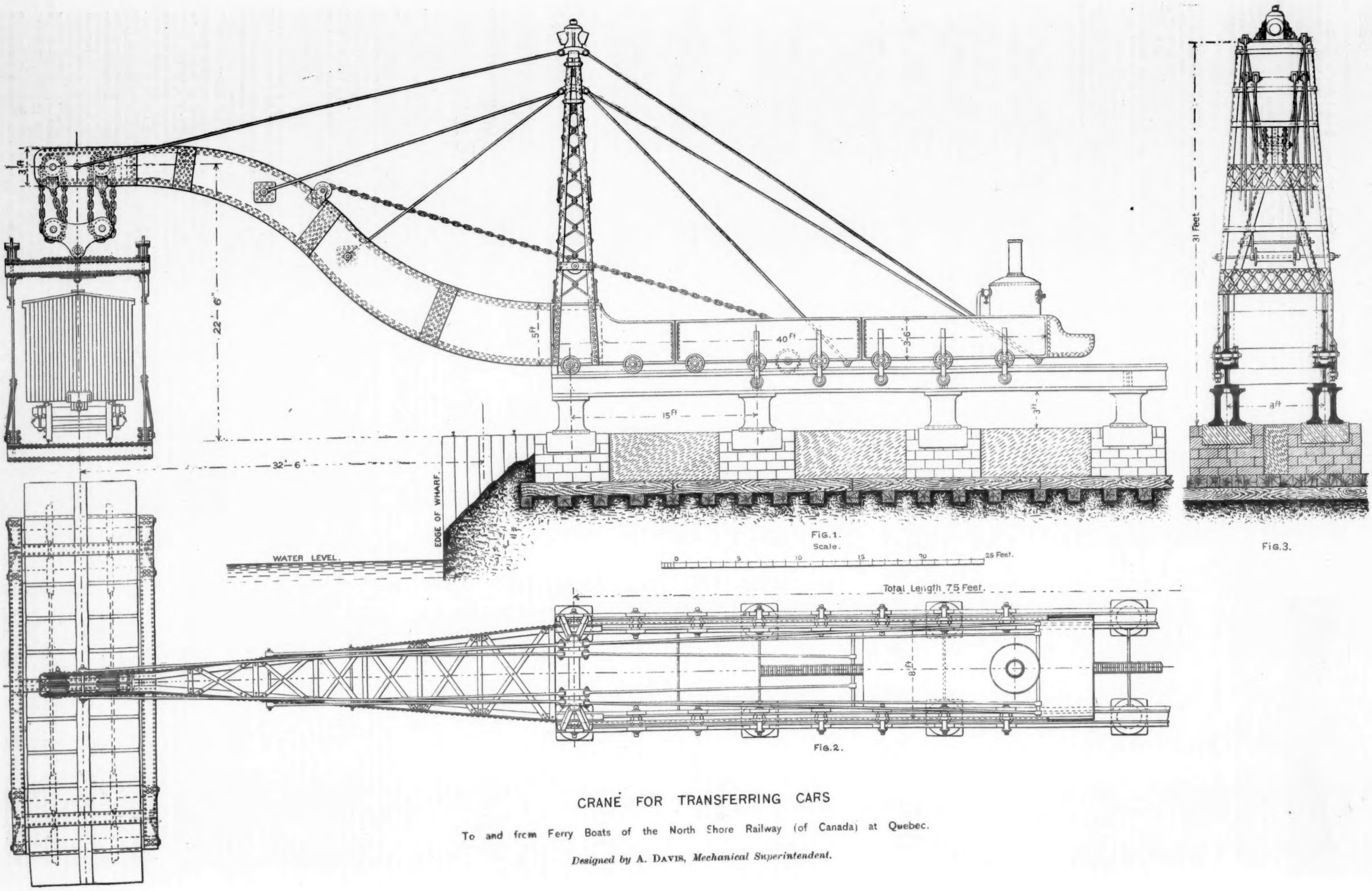

Fig.1.

Fig.3.

Fig.2.

CRANE FOR TRANSFERRING CARS

To and from Ferry Boats of the North Shore Railway (of Canada) at Quebec.

Designed by A. DAVIS, *Mechanical Superintendent.*

this is to make him directly responsible to that committee, and by giving the latter authority to appoint and remove him from office, to make the committee responsible for the way in which he performs his duties. This feature has been copied from the Constitution of the American Society of Mechanical Engineers.

Another feature, copied from the same instrument, is that of electing Vice-Presidents and Executive Members by the system of cumulative voting. The object of this is to place it in the power of a minority of one-third of the members to elect one candidate for both these offices and thus to give a minority a voice and representation in the Executive Committee.

It has been made the duty of the President at the first session of each annual meeting to appoint a Nominating Committee. The object of this is to give an opportunity as early as possible to canvass the names of candidates and thus allow the wishes of the members to be expressed. It will also be noted that the right is given to any three members to nominate candidates for any office. This, it is believed, will give the greatest desirable amount of liberty and opportunity for the expression of dissatisfaction regarding the management of the Association, should there be any.

An Auditing Committee is also provided for to examine the accounts and vouchers of the Treasurer. The object of this measure is apparent.

It is provided that the Committee on Subjects shall be appointed a year before their report is to be made, so as to give the members of it ample time to select matters of interest and profit to present for investigation and discussion.

No change is made in the method of appointing the Committee of Investigation.

Your Committee have thought it desirable to guard in some way against the adoption of standards without first giving the matter thorough or adequate investigation. A provision has therefore been inserted requiring that before any standard is recommended it shall be submitted to all the members of the Association for approval by letter ballot.

There has been a little difference of opinion among the members of your Committee regarding the question whether a vote of two-thirds, a majority of all the votes cast or only a plurality should be required for the final adoption of standards. A two-thirds vote would, no doubt, be a great protection against the hasty adoption of standards, but on the other had it may make it impossible, at times, to secure a decision or agreement when these are more important than that what is agreed upon should be absolutely right. It probably will happen that the Association may sometimes be obliged to decide questions involving three or more alternatives. Thus, if the question of deciding upon a standard brake-shoe were brought up it is likely that there would be three or more from which the selection would be made. In such a case it might be impossible to secure a two-thirds vote for any one of them when at the same time it would be more important that a decision should be reached than that absolutely the best one should be selected.

It will be for you to determine whether it would be wisest to require two-thirds, a majority or simply a plurality of all the votes cast for the final adoption of standards.

The question which has caused the Committee the greatest perplexity is that of the attitude which the Association should assume in the matter of patented inventions. The Committee are not certain that it would be wise to establish a rule prohibiting the recommendation of any device protected by a patent, and yet to do so is attended with great and grave dangers. It must be kept in mind that a patent, in the language of the law, is "a grant to the patentee, his heirs and assigns, for the term of seventeen years, of the *exclusive right to make, use and vend* the invention or discovery." If, then, the Association should recommend railroad companies to use any patented invention, they would be recommending them to do what they have no right to do. It may be well here to correct the impression which is very prevalent that a railroad company can use any patented article by simply paying the patentee for the use of it. Instead of this being the case, the owners of a patent can absolutely prohibit any company, or other party, from using the article patented, no matter how much they may be willing or offer to pay for its use. Thus if some one should invent an improved sleeping car and the Pennsylvania Railroad Company should buy the patent from the owner of it, and introduce the invention on its line in order to attract travel to it, it could absolutely prohibit the New York Central Railroad Company from using such cars on its road at *any* price.

It will be seen, therefore, that before the Association recommends the use of any patented invention, it is essential that the owner of the patent should indicate in some way whether he is willing that it should be used and the terms that he would exact for its use. The cost of a patent will often be an important element in determining whether its use would be desirable, and should have more or less influence on the recommendations of the Association. The Committee are thefore very strongly of the opinion that before any patented invention is recommended, there should be some proper assurance from the owners of the patent that it may be used by railroad companies, and the terms on which they can acquire that right should also be specified.

The Committee are, however, in much doubt whether it would be wise for the Association to specify how this assurance should be given, and they incline to the opinion that the owners of patents should be permitted to do this in any way that they may select, and which would be satisfactory to the Association, and therefore the only provision that has been inserted in the proposed amendments to the Constitution is that no invention shall be recommended which railroad companies have no lawful right to use. If the right and conditions of such use are conveyed or assumed, then, and not till then, would it become lawful.

Your Committee is therefore very decidedly of the opinion that no recommendation of patented articles should be made without some stipulation from the owner of the patent of the terms upon which the right to use the invention can be acquired, but it is very doubtful whether the phraseology or the conditions of Section 2, of Article IX., are the best that could be framed.

Under any circumstances, though, the recommendation of patents is attended with great risks to the Association. Such action would often have very great pecuniary value to the owners of patents, for which no doubt some of them would be willing to pay liberally. This would invite corruption, and might be a danger which would perpetually menace the usefulness and reputation of the Association. Your Committee are, therefore, of the opinion that very great caution should be exercised in recommending patented inventions, and that it should be done only when there are urgent reasons for such action.

The remaining provisions of the Constitution and By-laws require no comment. They, with the rest of the work of the Committee, are submitted for your consideration.

LEANDER GAREY,
W. T. HILDRUP,
M. P. FORD,
C. A. SMITH,
M. N. FORNEY,
} Committee.

Crane for Transferring Cars.

The North Shore Railway Company (of Canada) has established a line of iron steamers to ferry cars across the St. Lawrence River at Quebec, and thus make a connection between its road and the Intercolonial Railway for through traffic. The object of the crane illustrated by the engravings is to surmount the difficulty caused by the ebb and flow of the tide when loading and unloading cars from the steamer in winter. At this season the ice accumulates so rapidly as to make the use of a swing-slip totally impracticable. With the rise of the tide the floating ice is rushed up stream, and with the ebb it is carried down. It is consequently necessary that the steamer, on which the cars are to ferried, must approach the wharf with its bow always directed against the running tide, otherwise it would be broken away from its moorings and be in danger of being wrecked. Besides this difficulty, the ice accumulates so rapidly at the end of the wharf in very cold weather in winter that it often prevents the steamer from being fastened closer than six or seven feet from the wharf. Therefore the crane is made so as to roll out and reach the cars at low tide as well as at the extreme high tides, and at a distance of 32 ft. from the side of the wharf. If it had been possible to run a steamer into a slip or between ice breakers at all seasons, that method would have been adopted, but the tide runs at a rate of from 5 to 15 miles per hour, and carries with it a body of ice from 2 to 4 ft. thick, so that it would be useless to attempt to run a steamer crosswise to such a running stream, or between wharves, as the ice would under such circumstances cut the vessel to pieces. Consequently it was necessary to use a crane which would reach out from the wharf the distance named, and be able to lift a height of 27 ft. from the water level. The crane is calculated to lift an ordinary 33-ft. loaded box car from the steamer and land it on the end of the wharf in from 1¼ to 1½ minutes. It will be noticed that the bed of the crane forms part of the counterbalance weight, friction rollers being arranged below as well as above the flanges of the girders in which the crane runs. The car, as will be seen, are run on or into a cage, shown in detail in figs. 4 and 5, and it is thus lifted with the car to or from the boat. The crane has a lifting capacity of 85 tons.

The plans of the crane and of the works to be used in conjunction therewith, on both sides of the river, have been made by Mr. A. Davis, the Mechanical Superintendent of the North Shore road.

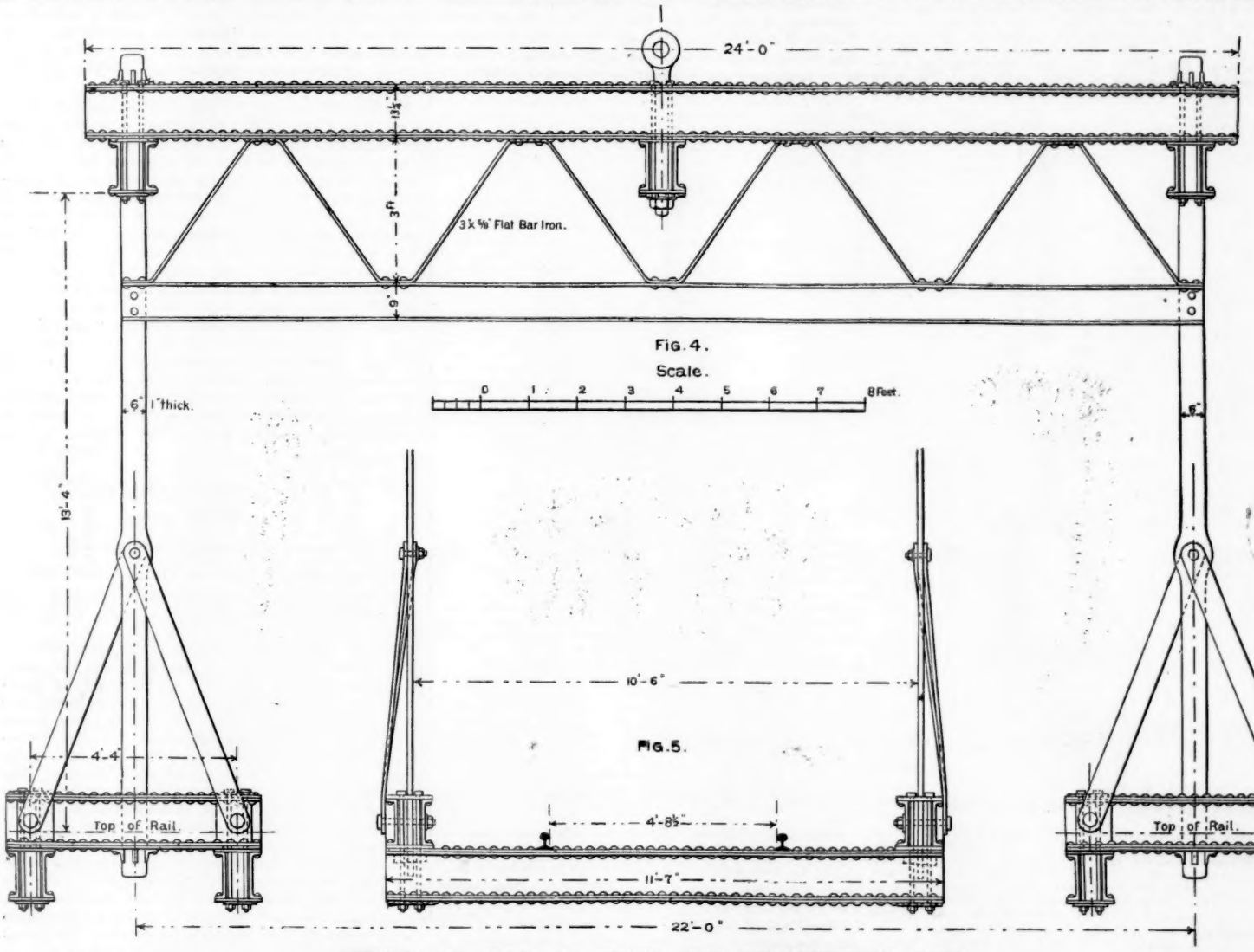

Fig. 4.

Scale.

Fig. 5.

DETAILS OF CAGE OF CRANE FOR TRANSFERRING CARS.

Surface Painting.

The following paper was read at the Master Car-Painters' recent convention in Chicago by Mr. C. E. Felch, of the Southeastern Railway, of Canada:

Surface painting! What a world of meaning in these

simple words! What cares and anxieties do they imply! They are passed by the unitiated without a thought; but to a man who has spent half a lifetime in a struggle with the elements which go to make up the various compounds used in this department of painting they are full of significance.

Surface painting may be properly divided into two classes. The first has for its end beauty and elegance; the second, durability. In the first durability is in a large degree sacrificed to effect; in the second, with which we have to deal, extreme durability is required, and with the present system of doing hurried work a method of procedure must be adopted that will give the best results in the shortest possible space of time. The work, however, will of necessity lack the elegant finish required in fine carriage painting. While I do not claim to put forward anything startlingly new or original, yet I shall endeavor to give in outline a simple and expeditious method of surface painting as applied to railway cars.

Leaving the patent primers to be properly advertised by their respective proprietors, I shall fall back on the good old-fashioned lead-and-oil priming. For sufficient paint to prime an ordinary passenger coach certainly one-half the liquid used should be raw oil; and here I would say that the quality of your oil should be, like Cæsar's wife—above suspicion. Less than half a pint of japan gold size will dry and bind the priming so that puttying may be proceeded with in 48 hours. Putty made of one-half keg-lead and one-half dry, with good rubbing varnish and gold size to bind it, will give very little trouble from shrinkage. It is a very good plan to fill large holes half full and allow this to harden before filling quite full. After sand-papering, a second coat of paint should be given, with the addition of enough raw oil to insure its drying with a slight egg shell gloss.

If very much hurried this coat may be omitted and a knifing coat applied at once. This coat should be somewhat thicker than for ordinary coating, applied roughly with a brush and allowed a little time to set. Then it should be knifed in with a broad-bladed filling knife, and a piece of sole leather for corners and moldings. Coarse-grained woods like oak or ash are perfectly filled with one coat. After sand-papering thoroughly the car is ready for color.

It would be difficult to establish any fixed rule for the quantity of liquids to be used, especially in colors composed principally of lead, as hardly any two brands are ground of the same consistency. But no more oil should be used than will dry soon enough to admit of another coat being given in 24 hours.

To apply a coat of light color without brush marks it will be necessary to use a flat badger flowing brush as a blender, after laying the color with an ordinary bristle brush.

Dark colors like umbers and lakes should, of course, be laid with a flat camel's hair.

The car having received the requisite number of coats to make a solid body is ready for decoration.

After this, a coat of finishing varnish, with the addition of perhaps one-fourth rubbing is to be applied, and, when dry, rubbed sufficiently to remove the gloss; follow with a heavy coat of clear finishing varnish, and the job is complete.

I may state, in conclusion, that cars painted by this method, and run out twelve months ago, are in good condition at the present time.

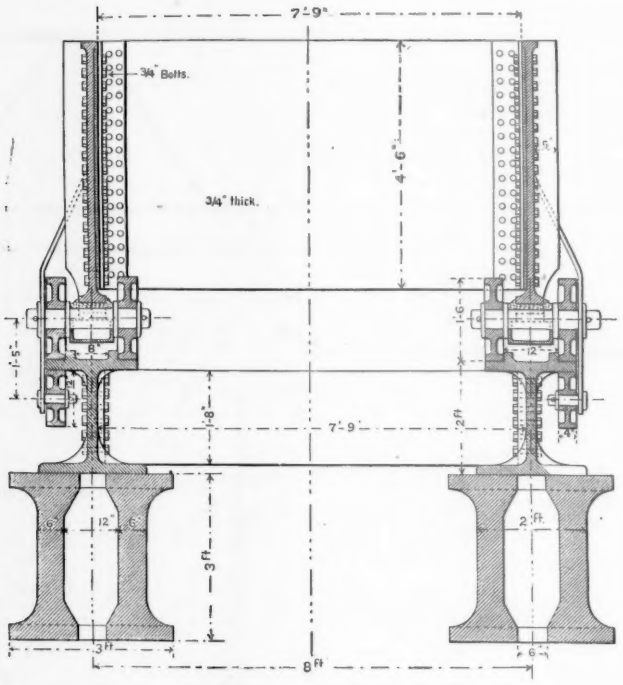

FIG. 6.

Details of Girders and Rollers of Crane for Transferring Cars.
(See page 625.)

Contributions.

Present Passenger Locomotives and High Speeds.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have read with great interest a letter under the above caption which appears in an American railroad paper this month, and as it has always been a subject of great interest to me, and especially so of late, my business engagements having placed me in a position to see most of what is being done in this line in England, and having also lately by the courtesy of American engineers seen some of the best and fastest running in the states, I think I may be able to add a few words touching the points raised by the writer of the letter referred to, and which may help the discussion on this important question.

If a continuous speed of 60 miles an hour is to be maintained with the increasing weight of train which the present traffic demands, we must certainly allow that a considerable increase of boiler power lies at the root of the whole question. I quite agree, however, with "V-Hook" that the steam we have at our disposal with the present boilers might be used to much greater advantage than it now is with the single cylinder and the link gear. This, in fact, is accomplished by the Webb compound engine now running in England. The substantial success of the Webb engine clearly indicates that it affords the final solution of the matter. To that compound system also we are indebted for the high rates of speed now attained at sea by our ocean steamers, and in a consumption of fuel so reasonable as to render the carrying of coal for long voyages possible.

The compound system modified to suit the conditions of the locomotive should with regard thereto produce a share at least of the success which has resulted from its adoption at sea.

So wide a departure from the ordinary practice may, however, well cause most master mechanics to hesitate before adopting a system which they have not seen exhaustively tried.

Speaking unofficially, though with certain and positive knowledge, I say that the first compound engine on the London & Northwestern Railway has now run much more than 30,000 miles, and with such highly satisfactory results as to endurance and economy that a number of them are now being built at Crewe for the express service of that road.

Accepting "V-Hook's" figures (though I think they are far within the mark), "that the steam entering the cylinders at 100 lbs. (which should be 150 lbs.) is ex hausted at 40 lbs.," there is plenty of room for the utilization of a large part of this pressure, either in a second or expansion cylinder, or by treating it more economically by the adoption of a separate expansion valve. There will still be left abundance to produce an efficient blast, always remembering that as less steam will be used a much lighter blast also will be required. This is so with the London & Northwestern compound, and a reduction of over 25 per cent. in the fuel consumption results.

The question of compounding, then, I take it, resolves itself very much into one of arriving at such a simplicity of arrangement as will carry the saving of fuel obtained far beyond any like increase of repairs, if any, to accrue from the new system. This, of course, is a master mechanic's question, and one deserving the closest and most careful attention.

But while awaiting the growing faith in the compound system and its consequent introduction, what, meanwhile, is to be done with the increasing weight of trains to be drawn and the higher speeds which at the same time are being demanded? Is "V-Hook" right in advocating the abandonment of the link gear and a return to the V-Hook with an independent expansion valve, as he appears to do? This would seem to me to be a retrogression in our railroad practice, and I should be very sorry to ill-treat so good a friend as the link gear has been by returning to what is now an antiquated device. By all means, however, go forward, and even abandon the link if a better plan can be found to meet the exigency, as set forth in the last clause of "V-Hook's" letter. In England I am advocating the use of much larger cylinders and relatively much earlier "cut-offs." And with the application of my own valve gear I am applying much longer laps than are general, and in that way am getting a sharper cut-off, while at the same time retaining the steam longer in the piston, and this I accomplish without raising the compression beyond the point to which it is now carried with the ordinary link gear. I hope, at an early date, by your kind permission, to lay before your readers steam diagrams taken from our large express passenger and fast freight engines arranged on these principles.

A few years ago, when I had control of a railway, I got excellent results by working in this direction, and I hope to prove that this is one step toward the better employment of our steam. However, we must still admit that with one valve for admission, cut-off and release, the "*best that can be*" is not yet accomplished. Under favorable conditions the most economical results as to consumption are undoubtedly to be obtained by the independent cut-off valve, but the question before master mechanics (who have the responsibility of keeping their traffics running) is this: Does the locomotive offer the most favorable condition for such employment? Would not the increased complication swallow up all the advantages of the more refined method of employing the steam?

For some time past I have been engaged on the question of producing a separate expansion valve and gear to be worked in connection with my ordinary reversing gear for marine engines, but of such simple construction as to recommend itself also in all positions. Hitherto my experience as to this application to marine engines has certainly inclined the other way, simplification of parts being generally the aim of marine engineers, so much so in fact, that even in a large case of engines to indicate 5,000 horse power I am applying my gear without an additional expansion valve.

The latter, however, is for compound engines, with regard to which, as I have said, it is generally admitted that the very exact distribution of steam to either or both cylinders is not so essential as where all the expansion has to be effected in one cylinder. For the latter case I have a simplified form of my reversing gear, which has to act only as a reversing gear moving the main valve (which is almost without lap), and an independent expansion valve, working on the main valve, and actuated by the same lever which serves for the main valve, but capable of being regulated for various degrees of expansion from the foot-plate. I will put valve path diagram at your service very shortly.

Then, with abnormally large cylinders employing an early cut-off, and getting the best out of the expansion by the independent cut-off, a step halfway up to the finality of the compound system should be attained. And thus a powerful and economical engine suitable for the loads and speeds required will be produced without any very wide departure from present practice, and with no risk of giving trouble in its introduction.

DAVID JOY.

Papers on Painting.—No. 23.

BY CHARLES L. CONDIT.

THE RELATIONS OF PARTS OF AN IRON STRUCTURE.

The questions involved in the influence of one part of an iron structure upon another as regards rusting are too important to be passed over.

Engineer Clark, of the Britannia Bridge, observed that a pile of plates in all respects the same as those in the bridge had rusted so badly that they were swept away with a broom, the bridge plates bolted together in the bridge suffering meanwhile no corrosion. This led him to the conclusion that iron might be protective of iron through connection, and to test the supposition he placed two plates on the bridge, one bolted to it, the other insulated by glass. The insulated plate evidently rusted the most rapidly, but the experiment was brought to a close by an accident before time enough had elapsed for a thorough investigation.

In direct contradiction to this, Mulder gives it as the result of observation that small pieces of iron connecting larger ones suffer so severely by rusting that it is better to paint the small ones thoroughly and leave the larger ones bare rather than *vice versa*.* The greater the difference between the size of the pieces the greater galvanic effect. He recommends therefore the dipping of nails and screws into coal tar in order to keep out all water and damp air which the galvanic action would quickly tend to decompose.

Here we see the electrical theory working in the exact opposite direction in the hands of two of the most trustworthy scientific men.

A recent experiment of Farquason's in Portsmouth Harbor shows that both may be right; and is moreover an evidence of the care needed in studying these questions.

Plates of iron and steel (each kind as nearly alike as possible) of the same size were placed under seawater, couples of iron and steel being connected and other pieces left isolated. All remained in the water for six months, and when weighed each had suffered loss by corrosion as follows:

	Loss. Oz.	Gr.
Steel connected to Iron	0	427
Iron connected to Steel	7	417
Steel	3	340
Iron	3	324
Steel connected to Iron	0	297
Iron connected to Steel	7	74
Steel	4	00
Iron	3	190
Steel connected to Iron	2	337
Iron connected to Steel	6	...
Steel	4	157
Iron	4	57
The three iron plates connected with steel lost	21	57
Isolated plates	11	137
The three steel plates connected with iron	4	187
Isolated plates	12	60
Connected plates iron and steel	25	244
Isolated "	28	197

It will be observed the total rusting is increased by contact about 9 per cent.
The iron lost by contact with steel about (excess) ....100 " "
The isolated plates of iron and steel lose each about the same.

This would have been still more instructive if iron would

* He says if a platina plate be thus connected with two pieces of iron, the galvanometer shows a current is flowing

also have been connected with iron and steel with steel, but as it is, no experiment made upon the rusting of iron is more suggestive. For, as Mr. Farquason suggests, and as has been shown by previous experiments using polished surfaces, iron rusts unequally, and it is probable that one part of the mass, harder than the other, will be destructive of the whole.

Mallet, who many years ago investigated the rusting of different sorts of cast iron, reached the conclusion that chilled iron rusts most rapidly; and that the more homogeneous and closer grained and less graphitic the iron the less the corrosion.

We see, therefore, that it is quite certain that differences in hardness and in structure of different pieces of iron connected may result in the greater corrosion of one than the other.

Also that Mulder may be quite right when he says that it is better to paint the small connecting pieces and let the larger pieces alone than *vice versa*.

As to the other conclusion, that iron connected with iron is protective, there appears to be no certain evidence aside from the effects of the vibration to which such a piece may thus be subjected. It has been pointed out that a pile of rails or the rails in a side track rust much more quickly than rails in the main line.

But all the causes of this difference have not been demonstrated. The first question to be settled is the amount of water *remaining* on each kind, and the amount of rust, also the mere physical effect of vibration as related to these. Certain only is the fact that vibration is protective against rust.

Connection with other Metals.—The question of connection with other metals is an important one in relation to the preservation of iron, and the question demands a closer study than we are here able to give it, for want of a complete set of facts.

Copper in connection with iron is very destructive; on this all who have investigated the matter are agreed. Professor Colton says that care should be taken that no copper comes into connection with ship iron.

Zinc.—Zinc by itself is one of the most durable of roofing materials. Prof. Max Pettenkofer was at the head of a commision which investigated the decay of zinc, and experiments on a zinc roof 27 years old showed that the rate of loss would destroy a roof one-fourth of a line in thickness in 243 years.

At a meeting of the Society of Engineers (English) many years ago, the following was given as the ages of zinc roofs (Belgian zinc) still in good preservation:

	Years.
The cloisters at Canterbury	33
Portsmouth dock-yards	24
Great Western Railway Station at Rugby	20
Another railroad station	20
" " "	15

With galvanized iron the case is different; it is valuable only when the conditions and its manufacture are such as to keep a perfect surface of zinc. Clark condemns its use in all arid atmospheres, but advises its use elsewhere, and there is a mass of testimony to confirm this advice, but it must not be forgotten that the question of the thickness and perfection of the zinc covering is involved in any such conclusion.

Under water experience with galvanized iron has been unfavorable. Mallet found that iron alone and iron in connection with zinc lost in weight in the ratio of 8.23 to 13.21, or more than 50 per cent. increase. In some water gates in which zinc nuts were screwed over the iron bolts to prevent corrosion, the iron was attacked after three years. Nevertheless, above ground as galvanized wire, inquiry into the comparative life of galvanized and common telegraph wires showed the life of the bare wire to be 15 years, while galvanized wire of 20 years' age was found to be still but little worn.

It may be said, therefore, that zinc-covered iron is valuable in proportion to its perfect condition, and for those conditions in which this perfection of covering can be kept; an arid atmosphere is destructive, as is also sea water.

Zinc and Paint.—The difficulty of making paint stick to zinc is, I think, of a different kind from that ordinarily supposed. Boettiger, who has studied the question somewhat, recommends the following as a valuable wash. Its purpose is to change the metallic zinc surface into zinc chloride and amorphous brass:

1	part chloride of copper.
1	" nitrate " "
1	" sal ammoniac.
64	" water.

The zinc surface is to be washed with this and left for 24 hours, which will give a black surface on which one can paint, but which will probably shell off the iron in the liveliest manner when any spot breaks up. A better method is probably simply washing the surface with dilute muriatic acid. This, however, will result in white lead turning as yellow as you please, as a Boston man discovered who used this preparation on a zinc ceiling ornament.

What we need to know is, *why* the oil does not stick. One reason, is because the surface is very smooth, and when the oil dries up, as it soon does, the paint having nothing to hold by, peals off. Another reason appears to be that the zinc does not unite with the oil acids, and, in fact, exercises some injurious action upon them.

In conclusion, it may be said that the great value of both tin and zinc-covered iron plates lies in the fact that only in this manner can we place the plates in position free from rust. If we were able to place naked iron in the same positions as thoroughly free from rust, it is not impossible it would be better so to do, because paint will hold to such iron better than to zinc or lead, and we should avoid all galvanic action. The experiment has been tried of finishing plates simply painted, but the paint rubs off in transit, and any bare spot may endanger the whole plate!

Finally, it may be said that except in sea water, there is no evidence of injurious galvanic action between iron surfaces and metals used with and covered by oil as paint.

*Wash thoroughly with pure water afterward.

What Mr. Vanderbilt Says.

Last Sunday a reporter of the Chicago *Tribune* boarded the special train which was carrying Mr. Wm. H. Vanderbilt and party from Detroit to Chicago, and reported the following interview. An abridged report of this interview was telegraphed to the Eastern papers, which, with only slight changes in the words used, made it very much less creditable to Mr. Vanderbilt, and indeed extremely unwise, to say the least of it:

"Mr. Vanderbilt, when will the Union Depot in Chicago be built; we Chicago people are getting tired of waiting for that long-awaited improvement?"

"Well, sir, last year an agreement was made between the Michigan and Illinois Centrals for its construction. We were to share the expense, and to exclude all other roads. Since then there has been some hitch in the arrangements, and among other things the Illinois Central wanted to admit the 'Nickel-Plate.'"

"Will you give your consent?"

"Will I! Not much. While I live and am President of this road that depot will not be open to any competitor: you can depend upon that. If you were going to open a barber-shop, would you open up and then admit a competitor in with you? Well, that's just about the case in question, and I do not see how any sane person would expect that you would. However, the arrangements are just about ready for the construction. Of course it will be quite a depot, and will be built on the old site, except that it will extend south to Randolph street, making it considerably larger."

"Could the roads charge less per passenger to New York and make a larger total profit?"

"No, sir, they could not. The passenger business gives but a small part of the profits of a road; it is the freight business that pays. How many passengers do you think leave Chicago for the East each day?"

"I know nothing definite about it, but I should suppose the number was well up in the thousands."

"Well, sir, you can put it down as a fact that not over 150 through passengers, if that many, leave each day, and here are six or eight competing roads sending out long, elegant and expensive trains, two and three a day, to get their share of these passengers."

"Do your limited express trains pay or do you run them for the accommodation of the public?"

"Accommodation of the public! Nonsense, and they do not pay either. We have tried again and again to get the different roads to give them up; but they will run them, and, of course, as long as they run them, we must do the same."

"In what shape is the Michigan Central?"

"The Michigan Central has not earned any dividend for the past year, but it don't owe a dollar and is complete and in splendid shape for all the business that can come. While it was not earning a dividend, it did not go on paying one, sapping its life; did not borrow money and turn it over to its stockholders as a dividend when it was not earning it, but just kept quiet and maintained its rolling stock and property in first-class shape. The stockholders know that when it earns a dividend they will get it, and in fact the Michigan Central is earning a dividend at the present moment."

"What is there about the watering of the Lake Shore stock?"

"It is all nonsense; but suppose we admit the fact. That very stock, watered, as you call it, cannot be bought for the same money to-day. Why, it's just this way: Suppose you are a dry goods merchant, and have been in the business for twenty-five years, and started with $5,000,000 worth of goods. You have some of the original stock to-day, you have constantly changed and added to the stock, until it is worth to-day $10,000,000. You rate it at that, and watered it may be, but you have the goods, and they cannot be replaced for less money. The Lake Shore is earning to-day 6 per cent. and will earn in the near future 8 and 9 per cent."

"But the 'Nickel-Plate' claim that their road cost about one-third the cost of the Lake Shore, and that therefore they can pay as good a dividend on their stock with a less amount of business."

"I'll bet any amount, and put it up, that the 'Nickel-Plate' road costs more per mile than the Lake Shore and is not half as well built. They seem to think that because the Lake Shore, an old well established road in splendid working order, is doing a large and successful business, they can rush right in with a half-built road and do likewise. Why, take your Chicago newspapers for an illustration! Do you suppose that where there are so many enterprising papers a new paper could start right in and have the circulation and earn the money that the *Tribune* does?

"It does not pay to fight. While we were all fighting not long ago, we earned but 2½ per cent., which is not encouraging, to say the least. In the event of a war between us and the 'Nickel-Plate,' they could count on a very small per cent. profit, not enough to enable them to pay any dividend. However, the fight taught us one thing—economy. We run 30 and 40 cars now to a freight train where we used to run 20 and 30, and have improved our rolling stock."

"What do you think of the 'Nickel-Plate' as a road?"

"It is a poor piece of work, and you can't tell me anything else, for I know it to be a fact. I hear that on the trial trip they went over some parts of the road at the rate of nearly a mile a minute. Well, somebody else will strike some of their elegant trestlework some of these days and go over it a mile a minute and faster too."

"Was it built to sell?"

"Yes, and I'll tell you why I think so. No man or set of men with sound sense could expect to build such a road and operate it to make it pay."

"Were you ever asked to buy the road?"

"Well, that's a puzzling question, and if you should ask me if I ever was asked by any one with the authority to sell, that would be worse still. It is true that I have talked upon the matter with certain parties, and that's all there is to it."

"What do you think about the New York, West Shore & Buffalo road?"

"I understand that it is a good road, but it don't run anywhere. If we gave them all our local traffic it would do them little good, for we make but 5-8 per cent. on it. In old days the local business used to pay pretty well, but all the points which the new road touches are now competitive points, and it will not pay. It is the through traffic that pays. All the business the new road can do won't be a flea-bite of the New York Central's business. Have you got that down?"

"Of course you are heavily interested in the Northwestern, Mr. Vanderbilt. Is that road in satisfactory shape?"

"Yes, sir; excellent. I regard Mr. Keep, Mr. Hughitt, and Mr. Layng as among the very ablest railroad men in the country. Their management is in perfect accord with the interests of the owners, and their excellent work is fully appreciated."

"Will the present freight rates be maintained?"

"Yes, sir; they have been too low, and will never be so low again. There will be no more cutting, for it doesn't pay in the first place, and it is not regarded with any favor at all by the mainsprings of all business—the banks. No business is good unless all parts of it are equally protected. Railroads are a good investment for the public, if treated fairly. If they do business in good shape and do not charge more than is satisfactory to the general public they should be successful, and if they are recklessly managed by fools then the investors are out of their money."

"Do you think that railroading is being overdone at present?"

"No; if they act squarely and unite they can all make money, but they cannot cut rates and make it pay. This fixed fact led to the establishment of the pools. Now, there seems to be an uncertain idea concerning these pools in many quarters, and a terrible cry of indignation is heard from the anti-monopolists as they style themselves. I regard these anti-monopolists in general, and especially their leaders, as frauds and blackmailers, and have found that when wanted for any purpose they are to be readily bought off."

"Do you consider the wages paid to your employés as a fair remuneration for their work?"

"Yes, sir, I do. Take for example the 600 or 700 engineers employed on the New York Central, who are the most intelligent and skilled workmen we have. Each engineer gets a fixed rate for every mile run, and he earns at that rate, from $4 to $4.50 per day. He knows that he is earning money in proportion to the business of the road, and the more satisfactory his service is, and the more business the road does, the more he makes. The majority of them are well satisfied, but there are some, say about 150 out of the number, who are not married men, and some of these spend their money in all kinds of ways. These are the ones who cause the trouble when any occurs. About thirty or forty of them will go to a meeting of the Brotherhood and take rash steps which will go out as the vote of the whole body, while in fact the steady ones were at home with their families. This state of affairs is rapidly being remedied by the weeding out of the unsteady fellows. We regard the Brotherhood as a good institution, and we find no difficulty in settling all matters in dispute by arbitration."

"Is there any foundation for the report that negotiations have been in progress towards the consolidation of the Pullman and Wagner sleeping-car companies?"

"I have been present at several conferences on that subject, and the Pullman Company know just exactly on what terms the consolidation can be made. It must be to the interest of the Wagner Company as well as to the interest of the Pullman Company, and no two or three outsiders can step in and get hold of the stock and profits of the Wagner Company. The Wagner cars are meeting with excellent success, and what the outcome of the matter will be I do not know."

At this point Mr. Vanderbilt's attention was called to the city of Pullman, which the train was passing, and he expressed great admiration for the beauty and substantial appearance of the place; but, said he: "When the Wagner Company builds a place like that and call it 'Wagner' you'll know it. The Wagner Company puts its profits in the pockets of its stockholders."

Referring again to the "Nickel-Plate" road, Mr. Vanderbilt said in regard to the rolling-stock of that road and that of the Lake Shore: "The 'Nickel-Plate' have, or claim to have, $6,000,000 worth of rolling-stock, all of which is owned by rolling-stock companies, while the Lake Shore owns its own rolling-stock. The 'Nickel-Plate' have sold 18,000 shares during the past two months, of which only 10,000 are actual sales, and at the price the stock is being sold the road is being disposed of at less than cost."

"What do you think of the Chicago & Atlantic?"

"It is said to be good property; but I do not know much about it, except that it is well built."

"Is the Canada Southern going into Detroit?"

"Yes, it will be there about the middle of November. We are building 14 miles of new road from Essex Centre to the river opposite Detroit. Powerful steam ferriers will be put into operation, and that will give us connection with the Michigan Central straight line clear through. This will enable the Canada Southern to compete with the Great Western, and put American capital on equal terms with the English interests."

"What as to the report that you have been selling large quantities of Union Pacific stock?"

"As to that I do not care to state. The road is in good shape, and no significance should be placed in any transactions I may have made."

"Are you interested in the Chicago, Burlington & Quincy, or the Chicago, Rock Island & Pacific?"

"Yes, I own considerable stock in the Burlington road, and I am the largest individual owner of Rock Island stock."

The New York Central's New Overhead Crossing in Rochester.

A correspondent of the New York *Evening Post*, writing from Rochester, Oct. 8, describes as follows an important improvement which deserves the more attention because it is a type of many others similar which sooner or later will have to be made in our large towns and cities, and often at great expense:

At 11:15 to-day the first regular train passed over the elevated tracks of the New York Central & Hudson River road through this city. It was a freight train of 31 cars, drawn by engine 381, going West. Other construction trains had gone over the high tracks, and yesterday morning President Vanderbilt, with Superintendent Toucey and some other officers of the road, crossed the new work, viewing it from the rear of Mr. Vanderbilt's car, in which he is making a journey to the Missouri River. Thousands of people were out to-day to see the first business trains go by, and it was with difficulty that the sight-seers could be kept out of the way of the train. Immediately after this westward-bound train "broke the path," freight trains ran east and west in the usual rapid succession on Sunday. The grade tracks through the city were abandoned as soon as the 10 o'clock passenger train went east this morning, they being cut up and swung into the elevated tracks at both ends of the new work. Last night the ticket office was moved from the old depot to the temporary quarters of the new one, and as the first freight was passing the new depot a "moving" train ran from the old depot to the new with a load of baggage trucks and other furniture. Hereafter all trains will pass over the elevation, and the old line will be filled as fast as dirt trains can haul in the material.

THE CONTEST OVER THE IMPROVEMENT.

The opening of this elevated line marks the beginning of a new era in the history of this city. The change has been contended for during half a dozen years, the city on the one side and the railroad company on the other being unable

to come to a satisfactory understanding thereto. When the project of raising the tracks was first suggested, many property owners and business men opposed the idea with all the vehemence with which such violent innovatio s are usually warred upon. The first official step was taken about five years ago by a resolution offered in the Common Council by Alderman E. B. Chace, who was Chairman of the Council Committee on Railroads. The resolution met with derision and rebuke in the Council and with a stock of remonstrances from the outside. It was allowed to lie on the table for six months before Mr. Chace again ventured to call it up. After a time a committee of the Council was appointed to go to New York and confer with the railroad authorities. Thenceforward every sort of proposition was made and rejected by one side or the other. One of the favorite schemes of the city was to require the railroad company to run its freight tracks around the city, as had been done at Syracuse, retaining the grade passenger tracks. The company objected to this plan, saying that if the freight tracks were to be carried around the city, the passenger tracks would be treated in like manner. As it appeared after many months of such negotiations that the local authorities could not come to terms with the railroad company, the matter was taken to Albany, where, in the term of 1880, Assemblyman Charles S Baker secured the passage of an act appointing a commission of thirteen citizens of Rochester, with full power to make a contract with the railroad company. Local public sentiment had by this time completely changed front. The elevated track project was advocated by those who had at first stoutly opposed it, and some of the worst alarmists became the most importunate for the commissioners to close up the bargain with the railroad company. Plans were submitted by the commissioners, and counter-plans by the engineer for the company. At last the plan that has been successfully carried out was pitched upon.

CHARACTER OF THE WORK.

The contract between the commissioners and the company required that the work should be finished within three years. It was assumed that this time would be needed to do it. The first practical step toward construction was taken in May last, and to-day it is so far advanced as to warrant the abandonment of the old line. The entire distance of the new construction is about two miles, extending from Goodman street on the east to Brown street on the west. The elevation above State street and over the Genesee River is 20 ft. above the old tracks. The distance is only partly filled as yet, and only two tracks are in use to-day. Wherever the embankment is along property not owned by the railroad heavy retaining walls are constructed or are to be constructed. Across the river there will be four or possibly five tracks when the work is done. Passengers on the north side of the cars will hereafter obtain a much better view than formerly of the falls and the gorge below them, as they will be seated 20 ft. above the old low bridge.

The new train-house and waiting-rooms are not yet completed. The walls are ready for the great roof, which will be constructed with immense arched trusses like those of the Grand Central Depot in New York. This edifice is situated an eighth of a mile east of the old depot. The train-house is planned seven tracks wide, and is a little over 800 ft. long. It will be used exclusively for passenger trains, the freight tracks, four or five in number, running out of doors on the north side of the train-house. The waiting-rooms, ticket office, baggage, and other apartments pertaining to passenger business are on the south side of the tracks, the same as they are at the old depot. These are partly constructed. They are to be finished in good style and with the most improved notions of railroad conveniences. The ground on which the new depot stands, and on which the passenger tracks under the broad arched roof are to be laid, will be made by filling up the deep cut, in the bottom of which the old tracks now lie. When all is completed passengers will never suspect what the topographical situation now is, nor can they be made to understand the immense amount of work that was necessary to make the change.

The spans across the streets are all of iron, resting on masonry of the most substantial appearance. At the river the stone piers rest on the solid rock bottom of the stream, and rise to within about four feet of the surface. The superstructure is of iron, like the spans across the streets. In building the new elevated bridge the iron trusses of the old bridge have been used, the piers being constructed at such a distance from each other as to receive the old iron-work. The elevated tracks over much of the distance through the main part of the city now rest on wooden trestles, but all this will be replaced as fast as possible by either ground filling or by iron trestles. Of late the company has carried on the work night and day by the light of electricity. It has been necessary to build temporary work in order to get two of the new tracks in readiness so that the old ones might be taken up to make way for additional construction. At St. Paul street and past the new depot there will be in all twelve or thirteen tracks.

RESULTANT CHANGES.

The scene about the old depot to-day is that of a domestic moving day. The seats in the old waiting-room were last night removed to the new temporary quarters. The time cards, the telegraph office, the news stand, the well-known clock, whose marble case and silvered face has for so many years made the traveling public conjecture that the company took its time from Rochester, the sleeping car booths, and all the fixtures and furniture of the old, dingy, not to say frowsy, depot are in process of removal to the new buildings. The change has quite upset the ancient habits of Rochesterians. They will hereafter take a new route to the depot by St. Paul street, which will be nearer for some of them and further for others. The mails are advertised to close ten minutes earlier than heretofore, and the newspapers announce that they will be obliged to go to press ten minutes earlier in order to catch the trains at the new starting point. The principal hotels—Osburn, Whitcomb, and New Osburn—are a little nearer the new depot than the old, and the city scenery along the new route is decidedly more pleasing than that of the old. Division Superintendent Burrows said to the *Evening Post* correspondent this afternoon that the new Rochester depot would be the handsomest along the route between New York and Buffalo.

The elevated tracks are a vast improvement for both the city and the company. The work will cost when completed not far from $2,500,000, an expenditure from which the public can best form an idea of its extent. It relieves no less than twenty much-traveled streets from danger of trains; enables pedestrians, teams and street cars to pass and repass without thought of approaching trains; saves to the railroad company the expense of two-score of flagmen and forever puts away litigation between the city and individuals about damages to persons and property. The city is almost equally divided in population by the Central Railroad. Two of the main lines of street cars cross it, and the largest part of the carting of freight to and from the Central road was up to noon to day done on grade across the tracks. All this is changed by the costly work the company has performed. The annals of the city record a long list of people killed or maimed by the railroad. St. Paul street crossed the old tracks by a bridge, against which many a luckless brakeman on the top of a freight train has had his brains knocked out. The old tracks lay for a good part of the way in a cut, and when heavy snow-storms came an army of men had to be employed clearing the road. On the elevated tracks snow may be tossed right and left by an engine plough. But perhaps the most important improvement for the railroad is the fact that the tracks now run on an almost level grade through the city. Engineer Fisher, who made the plans for the elevation, struck the level of the bridge over the Erie Canal in the west part of the city, so that now the heaviest freight trains are hauled by one locomotive. On the old tracks it required three locomotives, one ahead and two behind, to force an ordinary freight train up the heavy grade of the canal bridge. These "helpers" started nearly a mile east of the depot, and went westward up the grade with the utmost exertion of steam. To-day the freight trains are running over the elevated tracks with one locomotive as easily as they are hauled on the level of the Hudson River. There is a grade at the eastern approach to the raised tracks which requires a "helper" for freight, but when the work is completed this will be done away with. The first passenger train leaves the new depot at 4:35 east this afternoon and the first one west at 4:45.

Vermont Railroads.

Railroad Commissioner Wayne Bailey of Vermont makes his biennial report on the condition of the railroads of the state. He reports that in his judgment the several roads are not only in a safe condition, but that the older and principal roads are in excellent condition, comparing favorably with any in the country, while the others are in a very satisfactory condition. He finds no neglect or infringement of the laws for the regulation of railroads in the state by the officers of these roads. Reports have been received from 12 railway companies. The total length of all railroads in the state, as now operated, is 858 miles of main line and branches and 88 miles of siding. The total number of stations is given at 255. The law passed at the last session requiring all passenger trains to be provided with brakes operated from the engine has been complied with by all the roads in the state. The Miller plaform and coupler is in use on eight roads.

The following figures are given:

Train miles:	
Passenger	2,794,460
Freight	7,132,799
Service	716,023
Total	10,643,273
Passenger-miles	66,255,066
Ton-miles	489,869,283
Earnings:	
Freight	$2,835,265
Passengers	3,935 248
Mail, express, etc	728,071
Total earnings	$7,498,584
Expenses	5,845,103
Net earnings	$1,653,481

Expenses include $29,849 taxes paid.

Dividends to the amount of $228,610 have been paid. Twenty-one persons were killed and 60 injured by accidents on the various roads. Of this number 13 were passengers. 42 employés and 26 others. The Central Vermont road carried 1,269,591 passengers, none of whom were killed. The Passumpsic road carried 200,240 passengers, none of whom were killed.

The Commissioner recommends legislation in reference to the manner of heating passenger cars, in regard to low bridges, and also requiring passenger cars to carry axes, bars, etc., in some convenient place to be used in case of accident. The Central Vermont road has recently put patent racks containing these articles in a number of its cars.

Fraudulent Claims for Personal Injury in England.

In his reminiscences of his professional and social life, Sergeant Ballantine has some remarks on the nature of many of the claims made against the British railway companies under Lord Campbell's Act, and the difficulties which even in *bona fide* cases have to be met in arriving at a just decision in such actions. He says:

I have myself succeeded by cross-examination, in cases where claims were made for injuries received in railway accidents, in showing that the claimant had not even been present at the time of the occurence; and I may mention that in a case tried this very year before the Lord Chief Justice, I assisted in exposing a very gross fraud of this nature attempted by a medical man. No witnesses were called by the company which I represented, and upon my cross-examination, supplemented by some very important questions by the judge, the jury upon the plaintiff's evidence alone found a verdict for the defendants, and I believe the plaintiff had not been near the place when the accident occurred. Cross-examination has recently become more important than ever in sifting the evidence of professional witnesses in cases where injuries have been sustained from the above class of accidents, and in which the most eminent professional men occasionally fall into grave errors, and I feel obliged to add that some in the lower walks of the profession make the manufacture of these cases a not unprofitable trade. One of these worthies admitted in a recent trial that he might have been engaged in a hundred of them. * * * If the injury is outwardly apparent, and none is said to exist internally, the task is not difficult; but almost in every case some occult evil said to have occurred, is sometimes without any foundation, and nearly always exaggerated, and a jury are obliged to rely upon the truthfulness of a claimant and the accuracy and sound judgment of professional men. It is somewhat unfortunate that many undoubtedly able medical men have made this class of case a speciality, and some of the gentlemen are almost invariably selected as witnesses, and I fear quite unwittingly act too often with a spirit of partisanship. After relating the case of an accident where the damages were quite inadequate to the actual injuries sustained, as proved by the death within a few months of the plaintiff, Sergeant Ballantine goes on to quote a case where the plaintiff was brought into court apparently in a moribund state. He seemed scarcely able to articulate, and his limbs were without power or sensibility. According to the doctors, and I do not impugn their truth as to the fact, his powers of sensation had been tested by a needle which had been inserted in his arm without his exhibiting any sign of feeling; in fact, he created general sympathy and obtained a very large verdict, amounting to many thousands. It was thought useless to move for a new trial. Within a week after the time had elapsed for doing so the plaintiff was recognized climbing Snowdon in full activity and strength, and within the twelvemonth was presented with an heir, who, thanks to his father having been so nearly killed, was likely to have something to inherit. The manufacturing of injuries has become a regular trade among a low class of practitioners—men, who although utterly ignorant of the elements of their profession, have had no difficulty in learning what are the usual symptoms of a grave shock. The patient is sometimes a rogue, and deliberately misrepresents his feelings. Sometimes the nervousness that follows a railway collision leads him readily to embrace ideas suggested by questions put to him by his attendant. The doctor has probably made a bargain by which he will secure to himself a percentage upon the damages awarded by the jury, which amount, the action being against a railway company, is certain to be paid.

Cumulative Vibration in Bridges.

The following is from a report by Prof. S. W. Robinson, included in the forthcoming report of the Ohio Railroad Commissioners:

It is a well-known physical fact that rhythmical impulses, though very slight individually, will result in an astonishing cumulative action when applied for a time to a body so circumstanced as to vibrate in equal rhythm. Soldiers, in marching, must break step in passing over foot bridges, else, if the bridge should have a time of vibration equal the time of step, the structure would vibrate seriously. The trot of a dog has been observed to cause a street bridge to vibrate with decided intensity, the vibration being observed to keep time with the dog. Horses in vehicles "must not move over the bridge faster than a walk," for fear the trot and vibration periods shall agree. The child in a swing is able to rise from a low to a high altitude without help, simply by a tilting motion of the body, so directed that each adds a slight impulse to the oscillatory movement.

Similarly in railroad bridges a slight want of perfect balance of the locomotive driving wheels may cause unexpected vibrations and unanticipated strains when the times of half revolution of drivers harmonize with the bridge vibration time. The likelihood of such synchronism may be rendered more apparent by means of calculated results.

For example, a train moving at the rate of 30 miles per hour has a velocity of 44 feet per second. Locomotive drivers of 5½ feet diameter make one revolution in about 0.4 second, or a half revolution in 0.2 second.

Now, an iron bridge of 150 feet span will weigh about 1,400 pounds per foot. In vibrating vertically, as by placing a heavy load upon it suddenly, the ends at abutment do not participate, while the middle is most active. To get an approximation, without going into refinements as to distributed masses, suppose half the bridge length to vibrate equally while the quarters near the abutments do not vibrate, then half the weight of the bridge will enter into account for vibration, or 105,000 pounds. Next, let us suppose a train moves rapidly on, in which the drivers are out of balance; if the bridge vibrates, the engine and train to abutment will vibrate with it, so that a portion of vibratory mass must be added. Taking the weight of the train at 2,000 pounds per foot, the half-span, or 75 feet, will weigh 150,000 pounds. Finally, let it be supposed that the static deflection of the bridge for this train load is one inch, which is about that found for such cases.

Now, by the principles of dynamics, the time of vibration for this case, supposing the load at the centre of bridge is found to be

$$t = \pi \sqrt{\frac{W d}{w g}}$$

Where W is the total load, 105,000 + 150,000 = 255,000 pounds, w the added load = 150,000 pounds, d = the static deflection, = 1 inch, or $\frac{1}{12}$ foot, and g = the acceleration of gravity = 32, nearly. Introducing these and reducing, we find the time of a simple vibration to be 0.2 second, a value which agrees with the time of revolution of the drive wheels. Hence, unbalanced drivers will here cause vibration, with a period of 0.2 second. The period, from the highest point back to that point of movement, will correspond to the entire revolution, or 0.4 second of time. This will cause 2½ complete movements per second, and is the period which would be noticed by an observer.

Similarly, a bridge of 300 ft. span, weighing 2,600 lbs. par foot, undergoing a static deflection of 2 in. from a freight train load of 2,000 lbs. per foot, will vibrate in a period of 0.35 second. A double vibration, which corresponds with the time of revolution of a drive wheel, would be made in 0.7 second. This time of revolution of 4 ft. drivers answers to a train speed of about 11⅛ miles per hour, or 14½ for 5 ft. drivers. This case answers fairly to freight trains.

Hence, it appears that bridges are liable to become badly shaken from cumulative impulses: those of 100 to 200 ft. span by passenger trains, and those of 200 to 400 ft. span by freight trains.

To estimate the amount or intensity of this action, first consider passenger trains. To this end we will take advantage of the calculations of Mr. J. W. Cloud, of Altoona, Pa., Engineer of Tests for the Pennsylvania Railroad. The results of his calculations are given in a valuable paper, evidently prepared with much care, on "Shocks on Railway Bridges," and read before the American Institute of Mining Engineers, February, 1881. His calculations are for a locomotive of the Pennsylvania Railroad, Class B, the weight of which in running order is 73,100 lbs. Drive wheels, four in all, are 62 in. in diameter, weight of tender, loaded, 49,800 lbs.

The shocks that Mr. Cloud calculates are those due to the centrifugal force of the counterbalance weights in the drive-wheels, and considered as acting upon the bridge like a hammer with repeated blows, but without supposing synchronous bridge vibration to follow.

These calculations, as far as the downward and upward thrusts from centrifugal force are concerned, are exactly to our purpose. At a speed of 50 miles per hour, these thrusts for each of the four wheels are given at 6,260 lbs., and act downward when the counterweight is down, and upward when the counterweight is up, the two being repeated 4¼ times every second.

For our present purpose we must find the effect of all the wheels on the bridge, supposing the latter to vibrate in synchronism.

Now, as a wheel revolves, the centrifugal force acts in the direction of a radius through the counterweight, but this radius revolves with the wheel. For a half revolution there is a component downward, and for the other half there is a component upward. The resultant effect for a half revolution is about the same as though two-thirds of the force acted constantly for the half revolution downward, and then for a half revolution upward. Hence, for a single wheel the two-thirds of 6,260 is 4,173 lbs. Now, to include the effect of the 4 wheels, it appears, from the fact that opposite wheels have cranks at right angles, the resultant of forces in a right-angled triangle should be taken for each pair of wheels, giving 1.42 × 4,173 × by 2 lbs. = 11,851 lbs. for the combined action of all the wheels, in the form of a constant force for a half revolution. This is equivalent in its effect upon the bridge to that of all the counterweights.

Now, it is well known by the principle of dynamics that the dynamic deflection due to this force is twice the statical. The latter can be found by simple proportion in a comparison of the 11,851 lbs. with the train load of 150,000 lbs. If the latter produces a deflection of 1 inch, the former will cause a statical deflection of 0.079 inch, which will be downward for the downward force, and vice

versa. Calling these points of static deflection neutral points, we have for cumulative synchronous vibration the first dynamic downward deflection, equal to $2 \times 0.079 = 0.158$ in., with the lower neutral point at the middle of the amplitude. Now, because the force is reversed, the return amplitude will be such that the upper neutral point divides it equally, from which it appears (by aid of a sketch), that the latter amplitude is three times the first. The next amplitude, downward, with lower neutral point central, will be such as to reach a point in descent which is below the first lowest point of deflection, by a distance which equals four times the statical deflection. Now, by the continuation of this action, the force being supposed to reverse with the motion, each succeeding point of descent will be lower by a fourfold statical deflection, or by $4 \times 0.079 = 0.316$ in. Similarly for the upward movements.

Now, as the wheel makes about five complete turns along the central part of the bridge, we find this fourfold deflection to be repeated five times, giving us a resultant total deflection, due to the cumulative action, of $5 \times 4 \times 0.079 = 1.580$ in.—a deflection which is in excess of that due to the whole load of 150,000 lbs., viz.: one inch, by over 50 per cent. Hence, the cumulative action more than doubles the strain on the bridge. From this it appears that an iron bridge, calculated for the usual statical strain of 10,000 lbs. per square inch, would, from the additional cause now considered, be strained to 25,800 lbs. per square inch, a strain which is fully up to the elastic limit, and hence such a bridge would be in imminent danger of destruction.

The individual impulses will vary as the square of the velocity, or speed of the trains, so that, for about 35½ miles per hour the superadded strains will be only half what they are found for the above case of 50 miles per hour. But one point to be noted is that during a run of 100 or 200 miles at a stated speed of 30 miles per hour, an occasional speed of 50 may be reached, and this, likely enough, at the critical moment of crossing a bridge.

For freight trains at 15 miles per hour with 4-ft. drivers, a single impulse is only about one-seventh that for 50 miles, as above. But, as the bridges attacked are twice as long and the number of impulses twice as great, the resultant effect is about one-third that for the 50-mile speed, and hence causes a 35-per cent. superadded strain.

This action is believed to be a potent cause in the destruction of bridges, because the drive-wheel system is never exactly balanced. But such vibration is not expected for every train nor every bridge. The reason well-authenticated instances of its occurrence are not plenty is probably due to the fact that observing persons are not often in the position to detect it. Cannot the survivors of the St. Charles bridge disaster explain?

At least one case occurred in the experience of the writer causing personal alarm for the second and a half that the engine was apparently jumping along the bridge. It was during a ride in the cab of an engine, while seated and leaning out of the window; the bouncing was decided, and with no mistake, because the ride in this position was taken for the express purpose of seizing upon any peculiar incident or phenomenon. It furnishes a striking corroboration of the above calculations.

Removing Old Paint from Passenger Cars.

[Paper read by Mr. Robert McKeon, Master Car-Painter of the New York, Pennsylvania & Ohio Railroad, at the thirteenth annual meeting of the Master Car-Painters' Association.]

The removal of old paint from a car body previous to repainting is often necessary when the car has had repeated coatings of varnish which has become cracked and decayed, and the life and elasticity of both paint and varnish are destroyed.

This subject is of some importance, for we have yet to find the road that has no cars with cracked paint after they have been in constant service eight or ten years, and have been re-varnished at least once in two years.

Numerous methods have been employed for removing old paint, but how few of them have given satisfactory results after a thorough trial! A large majority of our railway paint shops are so situated that gas is not to be had, and the paint must be removed with such appliances as we have at our command in the shop. We may have employed different methods, but it is for us to consider at this time which is the most approved plan, which can be best determined by comparison. My first experience in taking off old paint was by the application of hot irons. You all know what those were—5 by 8 in. in size and 2½ in. thick. This was a tedious and not a very safe method; we found it no boy's play to heat and hold these irons while another man did the scraping. By this old plan the cost was $30 a car for burning and scraping ready to paint, and wages then were about two-thirds what they are now.

A charcoal furnace was used in some shops, but was not practicable for car work, it being best adapted to burning off on locomotive tanks. It is still in use with good success, although steaming the body of the tank is a better and quicker method when it is convenient to apply it. Some improvement was made when the spirit-lamp was introduced, Wakeman's being the first I had any knowledge of. It did the work well, one man being able to burn and scrape; but the most serious objection to this lamp is the expense of running it, four gallons of alcohol being required to burn off a car and costing about $10, and a large part of the time was spent in re-filling the lamp, as it would run but 1½ hours.

I might mention other methods of removing cracked paint. Many have been tried and found either too slow or injurious to the fresh paint which followed their application. Caustic soda, potash, concentrated lye, ammonia, carbolic acid, lime, wood naptha, the benzine paint burner, and others of a similar nature, are almost worthless at the present time, although they may have answered the purpose when nothing better could be had. Soaking or cutting the paint with alkali or acid is not a safe method. And supposing it were safe, wherein lies the economy when the burning is much the cheapest?

The gasoline lamp is not yet in general use, but I have used it for four years with the best of success. The expense of removing the old paint has been reduced fully one-half. It gives a steady heat and burns freely. A lamp holding one quart will burn 3½ hours. One man can burn and scrape, and a car can be burnt off and cleaned ready for painting at an expense of $15. This method is superior to gas, the flame is stronger and the cost far less. You also have the advantage of being able to take the lamp to any part of the shop, which cannot be done conveniently with gas.

When we burn off a car body, the wood battens are generally removed and new ones put on, although we frequently burn them when they are in good shape, especially about the middle rail of the body. Care is required in scraping off the blistered paint so that no gouging or scratches be made. The surface should be scraped clean, then sand-papered well with block and No. 1 paper before applying the priming coat. Scraping knives should be 1½ or 2 inches wide, stiff in the blade, square at the point, not sharp, but blunt; run the knife under the blistered paint, following up close to the lamp. If care is exercised, there is no need of making dents in the wood, and the heavier the body of paint on the car the better it will peel off; if the paint is very dry, give it a coat of raw oil previous to burning, allowing some time for it to soak into the paint. This will cause it to blister much easier, and it will scrape off cleaner from the wood. This lamp will burn in any position, will throw the flame wherever wanted; it can be spread in any shape; you may burn overhead on the roof projections as well as on the side. In fact, it is the most satisfactory and economical means of removing old paint that I have yet seen.

I shall have very little to advance on the methods of removing cracked or decayed varnish from the inside finish of the car. After ten or twelve years' service we find generally that the varnish is cracked more or less and requires to be removed if a good finish is desired. The best plan is by scraping the varnish off. This is the most practical way and makes a good job if well done and sandpapered properly; but too often inexperienced men, in scraping, will leave the surface in a bad condition. This should be guarded against, and men who understand the work put to it. A better foundation will be left after scraping than when the work was first turned over to the painter from the hands of the wood-finisher.

Other methods have been tried, and I have tested several. Spirits of ammonia will remove the varnish, but it requires time and repeated applications to reach the foundation; then, when it is done, you have got a rough surface which takes a large amount of labor to prepare it for varnishing, and any preparation of this nature has a tendency to destroy the richness of the natural woods. But supposing that any of the preparations offered for this purpose should not stain or injure the wood? Where has any saving been made when the varnish can be scraped off and the surface left in a good and dry condition at less labor and expense than by any other method? I am satisfied from my own experience that scraping is much to be preferred to any other plan that I know of.

THE SCRAP HEAP.

A Feathered Dead-Head.

An exchange tells the following, which is certainly the champion lie:

"A chicken at Alliance, O., went to roost upon the axle of a freight car. During the night the car was attached to a train, and when the feathered biped descended from his unsteady perch, he failed to recognize the scenes of his childhood. He was in Lima, and the man in whose garden he went to scratching got into a fight with the whole neighborhood by accusing everybody of owning the fowl."

Taking the Siding for Venus.

"Yes," said the conductor, biting off the tip of a cigar, and slowly scratching a match on his leg, "I've seen a good deal of railroad life that's interesting and exciting in the twenty years that I've been twisting brakes and slamming doors for a living.

"There is one incident in my railroad life," continued the conductor, running his tongue carefully over a broken place in the wrapper of his cigar, "that I never spoke of before to any one. It has caused me more misery than any one thing that ever happened to me in my official career.

"Sometimes even now, after a lapse of many years, I awake in the night with the cold drops of agony standing on my face and the nightmare upon me with its terrible surroundings, as plain as on the memorable night it occurred.

"I was running extra on the Union Pacific for a conductor who was an old friend of mine, and who had gone South on a vacation.

"At about 7:30, as near as I can remember, we were sailing along all comfortable one evening, with a straight stretch of track ahead for 10 or 15 miles, running on time, and everybody feeling tip-top, as overland travelers do who are acquainted with each other and feel congenial. All at once the train suddenly slowed down, ran in an old siding and stopped.

"Of course I got out and ran ahead of the engine to see what the matter was. Old Antifat, the engineer, had gone down, and was on the main track looking ahead to where, twinkling along about six or seven miles down the road, apparently, was the headlight of an approaching train. It was evidently wild, for nothing was due that we knew of at that hour.

"However, we had been almost miraculously saved from a frightful wreck by the engineer's watchfulness, and everybody went forward and shook old Antifat by the hand and cried and thanked him till it was the most affecting scene for awhile that I ever witnessed. It was as though we had stopped at the very verge of a bottomless chasm, and everybody was crying at once, till it was a kind of a cross between a revival and a picnic.

"After we had waited about half an hour, I should say, for the blasted train to come up and pass us, and, apparently she was no nearer, a cold, clammy suspicion began to bore itself into the adamantine shell of my intellect. The more I thought of it the more unhappy I felt. I almost wished that I was dead. Cold streaks ran up my back, followed by hot ones. I wanted to go home. I wanted to be where the hungry, prying eyes of the great, throbbing, work-day world could not see me.

"I called Antifat to one side and said something to him. He swore softly to himself and kicked the ground, and looked at the headlight still glimmering in the distance. Then he got on his engine and I yelled 'All aboard!' In a few moments we were moving again, and the general impression was that the train ahead was side-tracked and waiting for us, although there wasn't a side-track within 20 miles except the one we had just left.

"It was never exactly clear to the passengers where we passed that wild train, but I didn't explain it to them. I was too much engrossed with my surging thoughts.

"I never felt my own inferiority so much as I did that night. I never so fully realized what a mere speck man is upon the bosom of the universe.

"When I surveyed the starry vault of heaven and considered its illimitable space, where, beyond and stretching on and on forever, countless suns are placed as centres, around which solar systems are revolving in their regular orbits, each little world peopled, perhaps, with its teeming millions of struggling humanity, and then the other and mightier systems of worlds revolving about these systems till the mind is dazed and giddy with the mighty thought; and then when I compared all this universal magnificence, this brilliant aggregation of worlds and systems of worlds, with one poor, groveling worm of the dust, only a little, insignificant atom, only a poor, weak, erring, worthless, fallible, blind, groping railroad conductor, with my train peacefully side-tracked in the gathering gloom, and patiently waiting for the planet Venus to pass on the main track, there was something about the sombre picture that has overshadowed my whole life and made me unhappy and wretched while others were gay.

"Sometimes Antifat and myself meet at some liquid restaurant and silently take something in memory of our great sorrow, but never mention it. We never tear open the old, rankling wound or laugh over the night we politely gave the main track to Venus, while we stood patiently on the siding."—*Laramie Boomerang.*

Rules for the Use of Signals.

General Manager S. M. Felton, Jr., of the New York & New England Railroad, has just issued the following code of rules governing the use of signals at telegraph offices on single track on that road:

"The semaphore signals at telegraph offices will be used as follows:

"1. The arm extended in a horizontal position by day or a red light by night will indicate danger; stop. The arm lifted or lowered to a vertical position by day or a white light by night will indicate safety; go ahead. The normal position of the signal at all offices must be at danger, and the signal must never be secured or fastened in any other position, except at offices where there is no night operator, and then only on written consent of the Superintendent.

"2. The signals will be used for train orders and to block the different sections of both passenger and freight trains and trains following each other.

"3. All trains must be blocked 10 minutes apart, except where freight trains are closing up to take siding, or where the schedule allows a less time. Any train following a passenger train on the main track must be held by danger signal for ten minutes after the departure of the passenger train.

"4. All trains must stop for danger signal, and must not proceed until it is removed, and conductor and engineer receive orders, or a clearance showing there are no orders for them.

"5. In the absence of lights at night offices, trains must stop, and not proceed except as provided in Rule 4.

"6. Operators must always have red flag, red hand lantern and torpedoes ready to use in case of trouble with regular signals, or during foggy or stormy weather. The red hand lantern must be kept burning at night and ready for immediate use. The signal lantern must be lighted one hour before sunset, and kept burning until one hour after sunrise.

"7. When an operator has orders for any train, he will stop all trains of the same class for which order is given until the order has been delivered and properly acknowledged, giving clearance orders in each case to trains not affected. When a train approaches a telegraph office, and there are no orders, and all other trains have cleared the station the specified time, the danger signal must be withdrawn, but only between the time the train whistles for the station and the time the rear car of the train has passed the telegraph office 100 feet.

"8. Operators must be careful to raise signal in sight of engineer. Failure to do so will be considered by engineer as an indication that something is wrong, and he must stop and not proceed except as provided in Rule 4; reporting each case at the end of his trip to the Superintendent. Trains will be considered as having passed the station when the rear of the train has passed the telegraph office, whether on main or side track. In case a train stops on side track without rear car having passed the telegraph office, the danger signal must be displayed at once and trains must not proceed without orders as provided in Rule 4.

"9. Conductors must not rely on the protection of signals, but must, under all circumstances, protect their trains as provided in rules on that subject. Where offices are so located that a view can be obtained of the track, operators will look out before trains approach and see if the track is clear and switches properly set.

"10. At offices where there are no night operators, the signal will be fastened by the day operator at safety, before closing the office, and light extinguished between the hours of 7 p. m. and 7 a. m., unless through some emergency, it is necessary to keep office open; in which case the signal will be used the same as at other offices, and will be observed accordingly."

Wind Pressure.

In the Report of the Committee of the British Association on Wind Pressure it was stated that the maximum pressure on small plane surfaces had been ascertained to exceed 80 lbs. and even 90 lbs. per square foot. The pressure over any large area was still a matter of considerable uncertainty, but it was possible that the maximum pressure of 56 lbs. allowed by the Board of Trade might take effect over the whole of very exposed structures. The cases of wind and water pressure were somewhat analogous, at any rate with regard to the proper method of determining the relative exposure in various positions. In the latter case this might be done by a comparison of the readings of anemometers differently located.

Prof. W. C. Unwin remarked that some form of pressure guage of considerable delicacy was needed which could be applied to all parts of a roof. Mr. Barlow said that the Board of Trade rule was capable of being amended, and this no doubt would be done as soon as further knowledge was forthcoming; in the proposed Forth Bridge 3,000 tons of steel would be employed for resisting wind pressure.

Coke for Locomotives in Cities.

The Chicago *Tribune* of Oct. 8 says: "Mr. C. D. Law, Superintendent of the Western Division of the Pittsburgh, Fort Wayne & Chicago Railroad, informed a *Tribune* representative yesterday that the Fort Wayne road is now burning coke on all its switching engines in the city, and the engines drawing the accommodation trains of the road, with the greatest success. Mr. Law says that the more he tries the new experiment the better he likes it. There is no reason, he says, why every road centering in this city should not burn coke instead of coal within the city limits, and thus abate the smoke nuisance. He finds the expense for burning coke but little in excess of that for burning coal. The cost of coke on his engines is about 20 per cent. more than coal, but he uses from 15 to 20 per cent. less in weight, and it gives far greater satisfaction than the burning of coal, avoiding much annoyance and trouble. He says no alteration is necessary on the locomotives to adapt them for the consumption of coke, as the coal-burning engines thus far in use make just as good steam with coke as with coal."

A Ghost on the Railroad.

Firemen on the Virginia Midland Railway tell wonderful stories of the nightly appearance of a ghost on the track of that road, near Otto River, where a tramp was killed some time ago. His ghostship first appeared on two white horses, but, becoming more bold, of late the spiritual stranger, in the form of a man, has dispensed with the steeds, and has several times, unattended, taken a position on the track, in the attitude of the mad bull, and defied the iron horse. One night last week the fireman of an engine discovered what was supposed to be a man on the track. The engine, which was going at a high rate of speed, struck the man and apparently killed him. The train was stopped and several hands were sent back to see what damage had been done. The body was seen a short distance down the road, but upon the men reaching it it disappeared. At other times the ghost has appeared in the cabs of engines, and, after surveying things generally, just stepped out into space.—*Alexandria (Va.) Gazette.*

RAILROAD GAZETTE

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EDITORIAL ANNOUNCEMENTS.

Passes.—*All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.*

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published*

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

THE GRAIN MOVEMENT.

Since we last reviewed the grain movement we have passed from one crop year to another. During the first half of this year the records showed very decidedly the effect of last year's bad crops. Taking the totals of grain of all kinds the movement compared as follows with the previous years:

	1882.	1881.	Decrease.	P. c.
Northwestern receipts.	82,366,849	107,137,000	24,770,151	23.1
" shipments.				
Atlantic receipts....	51,129,115	110,208,873	59,079,758	53.6

Not only had the West less grain to spare, but the interior East and the South required more than usual, so that what shipments the West could make were largely absorbed before they reached the seaboard, and the Atlantic receipts were 59,000,000 bushels less than last year—not half as great.

In July we began to market the fine winter wheat crop ripened in the Ohio valley, Kansas and further south, and in the last half of that month there was a heavy wheat movement, stimulated by high prices, for the world was bare of wheat, and the first fruits of the new crop were needed to eke out the deficiency in the crop of 1881. The average weekly receipts at the eight Northwestern markets, which had been about 3,150,000 bushels in April, 3,312,000 in May and 3,038,000 in June, rose to 4,438,000 in July, and in the last two weeks of that month were at the rate of 6,266,000 a week; and the next month, when the vast crop was harvested, it was hurried forward to fill the place of last year's short corn crop; so that since June we have felt the new crop unmistakably. All this time, however, the movement of corn has been light, so that the favorable comparison for the total grain movement is not with previous years, but with previous months of this year. Thus for the six months ending with June and the three months ending with September the receipts of grain of all kinds at the eight Northwestern markets have been:

	1880.	1881.	1882.
6 mos. to June 30.....	116,279,392	107,127,000	82,366,849
3 mos. to Sept. 30.....	95,633,499	84,518,139	69,836,677
	211,912,801	191,655,139	152,203,526

This year 46 per cent. of the receipts of the nine months were in the last three months, last year 44 per cent., in 1880 45 per cent.—not a great change, but in favor of this year. Putting it in a different way, the receipts in the first half of the year were this year 23.1 per cent. less than last year; in the third quarter, 17.4 per cent. less.

For the nine months ending with September the receipts and shipments of grain of all kinds *and flour reduced to grain* at the eight reporting Northwestern markets, and the receipts at the seven Atlantic ports have been, in bushels, for the past nine years:

Bushels of Flour and Grain Moved in the Nine Months ending with September for Nine Years.

Year.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
1874.....	158,039,426	124,204,966	147,937,744
1875.....	124,030,144	126,943,131	132,679,232
1876.....	153,756,427	128,340,237	155,289,782
1877.....	134,650,840	114,970,917	130,723,589
1878.....	190,343,452	153,519,730	215,321,216
1879.....	202,241,982	176,608,253	249,301,856
1880.....	234,343,758	208,583,209	263,276,763
1881.....	224,016,556	191,451,188	228,759,304
1882.....	180,076,480	150,808,791	149,825,813

Thus the receipts of the Northwestern markets were this year nearly 44,000,000 bushels (20 per cent.) less than last year, 54,000,000 (23 per cent.) less than in 1880, 22,000,000 (11 per cent.) less than in 1879, and 10,000,000 bushels (5½ per cent.) less than in 1878. The shipments of these markets were 40,000,000 bushels (21 per cent.) less than last year, and the smallest since 1877. The Atlantic receipts were 79,000,000 bushels (34½ per cent.) less than last year, 113,000,000 (43 per cent.) less than in 1880, 99,500,000 (40 per cent.) less than in 1879, and 65,500,000 (30 per cent.) less than in 1878. The Atlantic receipts in 1876 even were 5,400,000 bushels more than this year, and as far back as 1874 they were very nearly as large. These Atlantic receipts are a better measure of the total grain movement this side of the Pacific coast than anything else, as a very large part of the most productive wheat and corn region does not ship by way of any of the Northwestern markets.

What we said above of the demand from interior points of the East and from the South absorbing an unusually large part of the surplus of the West is justified by the figures of this table. Usually the Atlantic receipts are vastly greater than the shipments from the reporting Northwestern markets, which means that the through shipments from non-reporting stations in the West and East are enough to supply the interior demand and this excess of Atlantic receipts over Northwestern shipments. This excess in successive years has been:

Year.	Bushels.	Year.	Bushels
1874.....	23,732,778	1878.....	61,801,486
1875.....	5,736,101	1879.....	72,693,073
1876.....	26,949,545	1880.....	54,693,554
1877.....	15,752,672	1881.....	37,308,116

Now this year the Atlantic receipts are not more but are 983,000 bushels *less* than the Northwestern shipments, so that the interior consumption must have been equal to all the shipments from the non-reporting points, including most of the shipments from the country east of St. Louis and Peoria that do not go to lake ports.

We have said that in the last three months we have entered upon a new crop year. We have heard much of the abundance of the crops this year, and it is natural to inquire why, with abundant crops, we still show an enormous decrease in the grain movement when compared with the four years previous. We may not say that the decrease of the first six months of the year was so great that the heavy business of the three months of the new crop year could not overcome it; for a comparison, month by month, shows that in the last three months also the grain movement was considerably lighter this year than for several preceding.

The secret of it is that we have entered upon the new crop year for small grains only, and that for corn, the most important of all, the last three months have been near the close of the worst crop for many years, when little was left in the country that the farmers could spare, and when nearly to the end of September the prospect of the ripening of a sufficient supply for home consumption was so dubious that the farmers dared not market what surplus above the requirements of the present year they had in their cribs.

By examining the receipts of corn, wheat and oats separately at the Northwestern markets for the last three months we shall see that this is true, and that, moreover, there is evidence of a large crop of small grains.

The receipts of each of these three leading grains in each of the last three months at the Northwestern markets have been for four successive years:

	1878.	1879.	1881.	1882.
Corn:				
July.....	8,210,989	15,047,200	13,573,072	5,373,369
August.....	7,514,724	16,087,199	22,078,360	7,179,101
September..	12,889,424	13,170,999	14,896,784	5,434,173
Wheat:				
July.....	8,935,811	9,861,003	5,089,248	9,531,045
August.....	15,077,083	13,482,882	9,717,319	13,134,775
September..	15,077,309	8,332,856	4,924,735	11,680,216
Oats:				
July.....	2,630,285	2,261,834	3,165,638	2,679,985
August.....	4,430,046	4,742,174	4,078,316	7,973,537
September..	2,745,549	5,258,888	3,458,889	4,474,622

We see from this what an important share of the total grain receipts has been corn, and how greatly this has fallen off this year. It is important that we should understand this, for corn is now the only one of last year's crops that is being marketed. It seems not to be generally appreciated that the summer grain movement is usually more corn than anything else; and that it is an important part of the total in September as well as June and July. Both in 1880 and in 1881 the receipts of corn at the Northwestern markets were larger in each of the three months—July, August and September—than the receipts of wheat, and the totals for the three months of each of the three leading grains were:

	1879.	1880.	1881.	1882.
Corn.....	28,615,137	44,365,208	50,548,118	17,087,443
Wheat.....	39,690,203	31,676,741	19,731,302	34,346,036
Oats.....	9,811,880	12,262,896	10,702,843	15,128,144
All grains.		95,633,409	84,518,189	69,836,677

In 1879 during these three months the corn receipts were 11,000,000 bushels less than the wheat receipts, but in 1880 they were 12,600,000, and in 1881 no less than 30,800,000 bushels more. They were 45 per cent. of the total grain receipts in 1880, 60 per cent. in 1881, and only 26 per cent. this year. With a decrease of 32,500,000 bushels in the corn receipts this year, not even a gain of 14,615,000 bushels (74 per cent.) in wheat and of 4,425,000 (41 per cent.) in oats, is able to make the grain movement heavy. The receipts of grain of all kinds are 17½ per cent. less than last year, and 27 per cent. less than in 1880, though both wheat and oats receipts are much larger than in either of those years!

This is further evidence that the importance of the corn crop is not sufficiently appreciated, nor the magnitude of the misfortune to the country caused by the very bad yield last year, which was but 1,180,000,000 bushels, against 1,717,000,000 in 1880 and 1,779,000,000 in 1879. We have crops of small grain this year probably at least equal to the largest we have ever had, and the effect of them is seen plainly in the receipts; but we are still depending on last year's corn crop; and, unfortunately, that grain has not prospered this year like the small grains, and we seem not likely to have more than 1,400 to 1,500 million bushels. This will be a great improvement over the crop of 1881, to be sure: but it will be 217 to 317 millions less than the crop of 1880, and 279 to 379 million less than the crop of 1879. In bulk this will much more than counterbalance any gain in small grains, which cannot be more than 100,000,000 bushels more than in 1880, while of wheat it is doubtful if there is any gain over that year.

The receipts of grain alone (not including flour) at each of the Northwestern markets for the nine months for three successive years, and the percentage of the total at each, have been:

	Bushels.			P.c. of total.		
	1880.	1881.	1882.	1880.	1881.	1882.
Chicago..	103,525,904	95,610,152	70,345,238	48.8	49.9	46.2
Milwaukee	11,083,391	12,665,745	10,653,458	5.2	6.6	7.0
Toledo...	29,250,918	18,792,064	15,260,868	13.8	9.8	10.0
Detroit...	6,580,890	6,037,841	5,232,125	3.2	3.1	3.5
Cleveland	4,900,251	3,586,258	3,031,751	2.3	1.9	2.0
St. Louis.	35,894,832	33,351,208	31,064,049	17.0	17.4	20.4
Peoria...	18,065,045	20,869,880	15,356,355	8.5	10.9	10.1
Duluth...	2,611,570	741,991	1,259,682	1.2	0.4	0.8
Total..	211,912,801	191,655,139	152,203,526	100.0	100.0	100.0

The total receipts are 39,452,000 bushels less this year than last, and there is a decrease everywhere except at Duluth, amounting to 25,265,000 bushels at Chicago, to 5,513,000 at Peoria, 3,531,000 at Toledo, 2,287,000 at St. Louis, and 2,012,000 at Milwaukee. The very large decrease at Peoria may be charged to the bad corn crop, as it receives but little other grain.

In percentages St. Louis alone shows a considerable gain, and Chicago a considerable loss. This is due largely to the marketing of the new winter wheat since June, as in the first six months of the year St. Louis percentage was much less than last year. Indeed, of its total receipts for the nine months, 15,283,800 bushels (49 per cent.) were in the last three months, against 12,014,992 bushels (36 per cent.) last year, and 14,097,449 bushels (39 per cent.) in 1880. Naturally, the more southern markets which deal in wheat have had the most benefit from the new harvest so far. Chicago in the last three months received a little less than 34,000,000 bushels, against 48,800,000 last year and 49,000,000 in 1880. It got less benefit from the new wheat, and felt the greater part of the decrease in corn. Milwaukee, still further north, and receiving almost no winter wheat, received but 2,888,000 in the three months ending with September this year, against 4,582,000 last year and 3,556,000 in 1881. The place next to which St. Louis shows the effect of the new wheat crop is Toledo. Down to the end of June it had received but 6,220,000 bushels of grain this year, against 14,327,000 last year; since June it has received 9,041,000 bushels, against 7,095,000 last year and 14,923,000 in 1880, which latter was also a great year for winter wheat.

Thus we see throughout that where there has been time for considerable receipts from the new wheat and oat crops, as at St. Louis and Toledo, receipts recently have been large; where it is too early for much of these grains to have come forward, and especially where usually the summer receipts are chiefly corn, as at Chicago and Peoria, the grain receipts in the last

three months are much lighter than in previous years. Chicago has had large receipts of new winter wheat and oats, but not for so long a time and comparatively not as much as Toledo and St. Louis. It and Milwaukee are but just beginning to receive their new spring wheat. Milwaukee's average weekly receipts in August were but 127,750 bushels; in the first two weeks of September, 263,000; in the last two, 393,000. So Detroit did not begin to show the effect of marketing the new wheat of Michigan until September, receiving then 266,600 bushels a week, against 134,000 in August and 85,000 in July.

We may expect hereafter large shipments of the new spring wheat, which will nearly all go to Chicago, Milwaukee and Duluth. There is a great deal to be shipped, but it is by no means certain that it will be marketed rapidly. Prices are low and the farmers are independent. And no holding back by them is likely to increase the demand enough to affect prices much. There is a fine wheat harvest the world over, and our early shipments of winter wheat served to meet the deficiency in last year's crop. Should the farmers be dissatisfied with the prices, the movement may be quite light for months, in spite of the large crop. And in any event there must be a light corn movement for some months; and even when the crop now about to be picked is ready, the movement of it cannot be large, as it was during 1880 and 1881, from the crops of the previous years, because there is not as much of it.

LOW RATES BY LONG ROUTES.

It is now publicly announced that the combined trunk lines have authorized rates to be made on freight from New York to the West, by way of New London and Montreal and the Grand Trunk Railway, which are about one-sixth less than the rates by the four trunk lines. This is not the beginning of business by this route, however, nor even of agreed differences in rates. Whenever rates have been well maintained, so as to leave some margin of profit to lines longer than the trunk lines, this route has competed for a share of the New York freight, by making rates considerably lower than by the shorter lines, just as lines from Richmond to the West have done and still do. And these long routes in such times have sometimes affected profits materially, because they endeavored especially to secure high-class freight. When the first-class rate was $1.50 per 100 lbs. from New York to Chicago, a long route might take first-class freight at half-price, and still receive more from it than the short lines received from the low classes.

It is only recently that the trunk lines have formally consented to differences by the New London route, but they have long been compelled to put up with them. The differences agreed upon previous to those just published (which went into effect Oct. 9) were about 50 per cent. greater than the latter, we believe.

On the New London route, by which these low rates are made, freight is taken from New York by steamboat east to New London, 125 miles; thence due north 375 miles to Montreal, whence the direction is southwest 564 miles to Detroit, 831 miles to Cincinnati, and 837 miles to Chicago. The route is longer than the shortest 58 per cent. to Detroit, 76 per cent. to Cincinnati, and 46¾ per cent. to Chicago. When the freight has gone the 500 miles from New York to Montreal, it is then 74 miles further from Cincinnati than when it started, and only 75 miles nearer Chicago, and 112 miles nearer Detroit.

The distances by this and the shortest route, and the rates per 100 lbs. by each are:

To CHICAGO:					
Distance, short route					912 miles
Distance, New London route					1,337 miles
	Class				
Rate:	1.	2.	3.	4.	Sugar and coffee.
Short route	60	50	40	30	25
New London route	50	42	34	26	21
Per ton per mile, cts.:					
Short route	1.29	1.09	0.88	0.66	0.55
New London route	0.75	0.63	0.51	0.39	0.32
DETROIT:					
Distance, short route					676 miles
New London route					1,064 miles
	Class				
Rate:	1.	2.	3.	4.	Sugar and coffee.
Short route	42	35	28	21	18
New London route	34	29	24	18	15
Per ton per mile, cts.:					
Short route	1.24	1 04	0.83	0.62	0.53
New London route	0.64	0.55	0.45	0 34	0.28
CINCINNATI:					
Distance, short route					757 miles
Distance, New London route					1,331 miles
	Class				
Rate:	1.	2.	3.	4.	Sugar and coffee.
Short route	55	46	37	28	23
New London route	45	38	31	23	19
Per ton per mile, cts.:					
Short route	1.45	1.22	0.98	0.74	0.61
New London route	0.68	0.57	0.47	0.35	0.29

To Toledo and Louisville rates per ton per mile would be still smaller by the New London route.

Thus, while the long route accepts about one-sixth less than the other lines, its receipt per ton per mile from New York to Chicago is 40 per cent. less; to Detroit about 48 per cent., and to Cincinnati about 53 per cent. less than that of the short lines. Many of the New London rates are too low to pay the cost of hauling the trains, but as the cars without this freight would have to go back empty, whatever is got for it is probably looked upon as pretty nearly pure gain.

Reckoning the cost at half a cent per ton per mile, the short route receives from a car-load made up of two tons from each class from New York to Cincinnati $75.60 gross, and $37.75 net, its expenses being $37.85, while roads in the New London route would receive $62.40 gross, but their expenses being $66.50, they would suffer a net loss of $4.10. And on Chicago shipments, the receipts for such a car-load by this route would be $69.20 against $82, the expense, $66.85 against $45.60, and its net earnings $2.35 against $36.40 by the short line.

If this is true, from a business of 1,000 tons a week to Chicago, the New London route would make a profit of $12,200 a year; while the short route would make $189,300 on the same shipments, and the latter could afford to pay the companies in the New London route ten times as much as the latter now make from the business to have this freight turned over to it, while the New London route would make, in addition, the expenses it would incur in doing the work, and the short line would still make $67,100 out of it, or more than five and a half times as much as the New London route could make by carrying it.

The weak point in these calculations is the neglect of the necessary west-bound movement of cars. There is no question, however, but that the movement of cars on the short lines is sufficient to carry all the west-bound freight, and that they could carry it with less expense than is incurred by the long route. Imagine all the roads under a single management, and we cannot conceive that it could be so stupid and wasteful as to send either empty or loaded cars from New York to Chicago or Cincinnati by way of Montreal.

Yet if the long route can make ever so little profit by going into this business it is entitled to all it can make, and if the roads which can make a great deal more profit on the same business wish to have the whole traffic left to them, they must pay the long route in some way—by giving it other traffic which it can conduct economically, or by a cash payment, or otherwise—at least as much as the profit the latter can make. The Grand Trunk is not bound to refrain from making $5 in order that the Pennsylvania may make $50; but if the Pennsylvania will give the Grand Trunk $10 of the $50 profit on the business, then it will be better for both that the Pennsylvania should do the business.

This is but one instance out of many of the waste incident to free competition among the railroads, and which would be avoided by their union or more complete co-operation. So far, the co-operation of the railroads has been chiefly for the purpose of securing remunerative rates. But there is an immense field for exercising it to reduce expenses, and in this at least the hearty sympathy of the public may be expected. There is nothing but waste in having a circuitous route do at an expense of $100 a week what a direct line could do better at a cost of $75. But the practice will not cease until the fact is recognized that every road is entitled to all the profit it can make on all the traffic it can get, *whether it carries the traffic or not.*

Chicago Shipments to the East.

Chicago rail shipments eastward for the nine days ending Sept. 30 were 44,101 tons, which is at the rate of 33,076 tons per week. Of the shipments for the nine days the Chicago & Grand Trunk had 11.6 per cent., the Michigan Central 21.3, the Lake Shore 19.4, the Fort Wayne 30.9, the Pan-Handle, 8.7, and the Baltimore & Ohio 8.1 per cent. The two Vanderbilt roads together had 40.7 per cent. of the whole; the two Pennsylvania roads 39.6 per cent.

For three successive years the Chicago shipments in this week ending Sept. 30 have been:

	1880.	1881.	1882.
Tons	35,928	52,059	33,073

This year the shipments were 18,983 tons (36½ per cent.) less than last year, and 2,8 2 tons (8 per cent.) less than in 1880. They were also 2,535 tons less than in the previous week of this year and were the smallest for five weeks.

The earnings for the week must have been about at the rate of $100 this year for every $79 last year and $130 in 1880.

For the month of September the Chicago shipments for four successive years have been:

	1879.	1880.	1881.	1882.
Tons	134,141	151,464	265,414	154,696

Thus we see that the shipments this year were larger than in 1879 or 1880, though 42 per cent. less than last year, and the earnings from the shipments of the month must have been about at the rate of $1,000 this year for every $856 last year, $1,175 in 1880, and $1,040 in 1879, the grain and flour rate having been 25 cents per 100 lbs. this year, about 12½ last year, and 30 in the other two years, though somewhat irregular in 1879. The business this year therefore must be considered positively good. In 1880 it probably was decidedly better (more profitable) than in any other year.

For the nine months ending with September the Chicago shipments for four successive years have been:

Month:	1879.	1880.	1881.	1882.
January	192,512	163,378	263,873	321,148
February	198,541	160,541	204,331	225,816
March	258,458	318,983	212,021	179,145
April	298,042	186,543	275,417	138,472
May	280,355	125,157	171,432	115,772
June	260,234	223,977	242,463	115,805
July	145,788	160,187	259,253	95,039
August	162,263	169,314	260,608	138,242
September	134,141	151,464	265,414	154,696
Nine months	1,930,334	1,665,544	2,154,811	1,484,135
The year	2,471,738	2,309,640	2,889,317	.....

The increase since July is very great, but the shipments for the five months from March to July, inclusive, were so small that the largest shipments possible under existing circumstances for the last quarter of the year must leave the total shipments of the year considerably less than in any of the other three. For the nine months the shipments this year are 31 per cent. less than last year, 11 per cent. less than in 1880, and 23 per cent. less than in 1879.

The prospect for the rest of the year now is that there will be large shipments of wheat and very large shipments of flour, but the shipments of corn and hog products will in all probability be the smallest for several years. The very low lake rates tend to limit the rail shipments of wheat, even, but the vessels are not carrying much. A light fall movement will be to the advantage of the railroads, however, as after November the railroads will have all the shipments to carry until the opening of navigation in the spring, and if the farmers hold back their wheat in October and November, the total rail movement from the last crop will certainly be larger than if there is a free movement in those months; and in the winter the railroads will be able to get higher rates than now. It is not probable that they will be able to get high rates next winter, at least not on export grain. Prices are low and the harvests in other countries have been so abundant that Europe will take little wheat from America during the winter, if the cost of transportation or speculation makes it high. This apparently will be a good season to begin the practice of making rebates on grain exported. It is possible that by such a rebate American farmers may be able to supply some markets from which otherwise they will be shut out this year by the abundance of foreign harvests.

For the week ending Oct. 7 the shipments billed at Chicago (not including those from points west billed through Chicago, which are given in all the statements above) were 24,432 tons this year, against 50,571 in the corresponding week of last year and 23,457 tons in the previous week of this year. Of the total decrease of 26,139 tons from last year, 6,759 tons were provisions, 15,387 grain, and 3,993 flour. The percentage of decrease was 56½ per cent. in provisions, 54 per cent. in grain, and 39 per cent. in flour. The decrease in provisions is unusually large.

The shipments of flour and grain from Chicago in the week ending Oct. 7 were divided as follows between the railroads and the lake. The quantities are tons:

	Flour.		Grain.	
	1882.	1881.	1882.	1881.
By rail	6,248	12,046	12,996	28,383
By lake	10,840	7,354	58,283	21,115
Total	17,088	19,400	71,279	49,498

Thus the railroads carried but 36.6 per cent. of the flour and 18.2 per cent. of the grain this year, against 62 per cent. of the flour and 57.3 per cent. of the grain last year. An unusual proportion of the flour went by lake this year, but the proportion and amount of grain by lake are not unusual though so much greater that last year. The grain shipments, for instance, were only about 2,000,000 bushels this year, while throughout the summer and fall of 1880 the lake shipments were more often 3,000,000 bushels than a less quantity.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Atlantic & Pacific.—Extended from Williams, Ari., west 23 miles. The *Central Divison* is extended from Claremore, Ind. Ter., west by south to Tulsa, 33 miles.

Brighthope.—Extended from Chester, Va., east to Bermuda, 10 miles.

Chicago, Milwaukee & St. Paul.—The *Hastings & Dakota Division* is extended from Millbank, Dak., west 1 miles. The *Okoboji Branch* is completed from Spencer, Ia., north to the Okoboji Lakes, 17 miles. On the *James River Branch* track is laid from Mitchell, Dak., north to Letcher, 15 miles.

Chicago & Northwestern.—The *Watertown Branch* is extended from Clark Centre, Dak., west to Redfield, 43 miles.

Denver & Rio Grande.—The *Blue River Branch* is extended from Wheeler, Col., to Frisco, 7½ miles. The *Utah Extension* is extended west to Delta, Col., 5 miles. Gauge, 3 ft.

Denver & Rio Grande Western.—Extended from Pleasant Valley, Utah, eastward 51 miles. Gauge, 3 ft.

East Tennessee, Virginia & Georgia.—The *Ooltewah Branch* is completed from Ooltewah, Tenn., to Red Clay, 11½ miles. The *Cincinnati & Georgia* line is completed by laying track between Dallas, Ga., and Hill's Creek, 6½ miles. Gauge, 5 ft.

Galveston, Harrisburg & San Antonio.—Extended westward to Pecos Crossing, Tex., 10 miles.

Leavenworth, Topeka & Southwestern.—Completed to a

point forty-two miles west by south from Leavenworth, Can., an extension of 14 miles.

Louisville & Nashville.—A branch is completed from Madisonville, Ky., west to Providence, 16 miles.

New York, Lake Erie & Western Coal & Railroad Co.—Road completed from Crawford Junction, Pa., southward to Johnsonburg, 29.92 miles.

New York, Susquehanna & Western.—Extended from Warrington, N. J., to Gravel Place, Pa., 14 miles.

Ottumwa & Kirkville.—Completed from Ottumwa, Ia., northwest to Kirkville, 12 miles.

Pemigewasset Valley.—Track laid from Plymouth, N. H., north to Mad River, 5 miles.

Pennsylvania.—The *Sugar Camp Branch* is completed from the Tyrone Division to Sugar Camp, Mine, Pa., 3¾ miles. The *Vance's Mill Branch* is completed from the Redstone Branch to Vance's Mill, Pa., 2½ miles.

Pittsburgh & Western.—The *Parker Division* is extended from Butler, Pa., southwest to Baldridge, 7 miles. Gauge, 3 ft.

Reno City & Eldred.—Completed from Eldred, Pa., south to Rew City, 12 miles. Gauge, 3 ft.

Savannah, Florida & Western.—Track laid on the *Florida Extension* from Live Oak, Fla., south to Rowland's Bluff, 24 miles. Gauge, 5 ft.

Sioux City & Pacific.—The *Nebraska Division* is extended from Thatcher, Neb., westward to Valentine, 6 miles.

Toledo, Cincinnati & St. Louis.—Extended from Fillmore, Ill., west to East Shoal Creek, 10 miles. Track laid between Stewardson, Ill., and Ramsay, 30 miles. Gauge, 3 ft.

Union Pacific.—The *Grand Island & St. Paul Branch* is extended from St. Paul, Neb., northwest to North Loup, 27 miles.

Utah & Northern.—Extended from Silver Bow Junction, Mon., north to Deer Lodge, 30 miles. Gauge, 3 ft.

This is a total of 491¾ miles of new railroad, making 8,081 miles thus far this year, against 5,340 miles reported at the corresponding time in 1881, 4,135 miles in 1880, 2,507 miles in 1879, 1,422 miles in 1878, 1,548 miles in 1877, 1,740 miles in 1876, 903 miles in 1875, 1,180 miles in 1874, 2,897 miles in 1873 and 5,147 miles in 1872.

SEPTEMBER EARNINGS have been so far reported from 55 railroads, having this year 45,227 miles of road, against 40,710 last year, the increase being 4,517 miles, or 11 per cent. Their aggregate earnings increased from $25,205,999 to $28,782,297, the gain being $3,576,298, or 14¼ per cent., and their average earnings per mile increased from $619 to $636, or 2¾ per cent.—a trifling gain. Though the number of roads reporting is large, there are still absent from the list the most important ones which are included in our monthly table, published three weeks later—as the Pennsylvania, the Philadelphia & Reading, the Northern Central, the Marquette, Houghton & Ontonagon (which have larger earnings per mile than any others that report), and numerous less important lines. On the other hand, the earnings of the "Main Stem and Branches" of the Baltimore & Ohio are included, and these have not been given heretofore. The four companies whose stocks have been especially weak of late all show an increase in total earnings over last year. Though there is a decrease in earnings per mile on the Denver & Rio Grande, they are still quite large—$513—double what the road had before 1880, and more than the earnings per mile of the Milwaukee & St. Paul, the International & Great Northern, the Missouri, Kansas & Texas, or the Wabash. The Louisville & Nashville increases its earnings per mile from $517 to $547: the Richmond & Danville, from freight alone, earned 2.4 per cent. more than last year from the same mileage; the Union Pacific's gain of 3⅛ per cent. was made with an increase of 10¼ per cent. in mileage, and the earnings per mile fell from $850 to $760; but as the new road has but a fraction of the capital per mile of the old road, there is nothing particularly unfavorable in this. If the earnings of the old road were the same as last year, then those of the new were $263 per mile—not at all bad for the first year of new lines in the mountain and plains country. Earnings, however, are of course but one of the elements of profit.

A notable gain in September is that of 18½ per cent. in the total and 5 per cent. in earnings per mile by the Chicago, Milwaukee & St. Paul, which in every other month of this year, we believe, has shown a decrease in earnings per mile, and usually, in spite of a great increase in mileage, a decrease in total earnings also. The Chicago & Northwestern, which has in most months before this year had a decrease in earnings per mile, in September also has a decrease from $780 to $740, the increase in total earnings being about 9 per cent. The St. Paul & Omaha increases from $380 to $451. The Atchison, Topeka & Santa Fe gained largely, but less than in August, when and in July probably it had the cream of the Kansas wheat traffic. The Chesapeake & Ohio continues the very large gain shown for a short time past, and the Chicago & Grand Trunk's gain is nearly 54 per cent. The Wabash does not show the gain that was to be expected from a line covering so large a part of the winter wheat belt; it is nearly 13 per cent. in total earnings, but the earnings per mile have increased only from $484 to $491, and are still quite small for what ought to be one of the best months of the year. It doubtless feels very much the exhaustion of last year's corn crop. The Chicago & Alton, doubtless profiting by the heavy Kansas business, makes a gain of 13¼ per cent., but the Illinois Central in Illinois, with an adjacent system in Illinois, but without the Southwestern connection of the Alton, shows a trifling decrease. The Hannibal & St. Joseph gains 8 per cent., the Missouri Pacific 28 per cent. The Manitoba continues its enormous gains by one of 70 per cent., and makes $816 per mile from its system of new roads in new country. The Baltimore & Ohio, without increase of mileage, makes an increase of 7 per cent. in earnings on its main line and branches, which, considering the railroad war last year, is a smaller increase than was to be expected on a trunk line. Only six of the 54 roads reporting show a decrease in total earnings, and only those of the Mobile & Ohio (28 per cent.) and the Des Moines & Fort Dodge (32 per cent.) are important. Among the reports are those of the two elevated railroads in New York city, that of the Metropolitan showing a decrease of 9 per cent.; that of the New York Elevated an increase of 24 per cent. The latter earned $20,000 per mile, the former $11,039 during the month. Only one or two of the roads reporting have so large earnings per mile in a year as the New York Elevated had in this one month.

THE ILLINOIS COAL PRODUCTION is reported by the State Bureau of Labor Statistics to have been 9,115,653 during the year ending with July last, against 6,115,377 reported by the United States census for the year ending with June, 1880, and 2,624,163 tons by the census of 1870. The increase in the last two years is thus 3,000,000 tons, or nearly 50 per cent.; an almost incredible progress for so short a time. Illinois in 1880 was third in rank of the coal producing states, Ohio being second and Pennsylvania, of course, first. The increase in Illinois since 1880 makes its production greater than that of Ohio. No less than 46 of the 102 counties of Illinois produce coal, and these extend from a point north of Rock Island to the Ohio near Shawneetown, and from the extreme west to extreme east of the state. It is unnecessary to point out the fact that this great coal production, and the capacity for a production many times greater, are likely to secure for Illinois industrial supremacy in the West. Indeed, it is already a great manufacturing state as well as the greatest agricultural state, usually the greatest producer of corn, wheat and hogs. This is a fact of great importance to the dense net-work of railroads in Illinois. They are far too numerous to be supported by agriculture, but a development of manufactures like that in New England, New York, Pennsylvania, or even Ohio, would greatly increase their traffic.

LAKE, CANAL AND OCEAN RATES are all a little higher. The advance in lake rates, made in the last days of last week, is ¼ cent, to 2½ cents a bushel for corn and 2¾ for wheat from Chicago to Buffalo. The number of vessels ready to carry was limited, and the shipments which caused this advance, though larger than in some previous weeks, were still small compared with other years.

The advance in canal rates, made Monday, was half a cent, to 3⅜ cents a bushel for oats, 6 for corn and 6½ for wheat from Buffalo to New York. These rates were reached for a few days two weeks ago.

Ocean rates were quoted Tuesday at 4¾d. to 5d. per bushel for grain by steam from New York to Liverpool.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

New York, Lake Erie & Western, annual meeting, at the office in New York, Nov. 28. The register for voting bondholders is open from Sept. 29 to Oct. 28.

Danbury & Norwalk, annual meeting, at office in South Norwalk, Conn., Oct. 26, at 1:30 P. M. Transfer books close Oct. 15.

Cincinnati, Indianapolis, St. Louis & Chicago, annual meeting, at the office in Indianapolis, Ind., Oct. 31, at noon. Transfer books close Oct. 21.

Railroad Conventions.

The *General Time Convention* was to meet in Cleveland, O., Oct. 12.

The Southern Railway Time Convention will meet at No. 46 Bond street in New York, Oct. 18.

The *Association of American Railroad Superintendents* will hold its fourth meeting at No. 46 Bond street, New York, Oct. 18, beginning at 10 a. m.

The *Brotherhood of Locomotive Engineers* will hold its annual convention in Louisville, Ky., beginning Oct. 18.

The *Southern Railway & Steamship Association* will hold its eighth annual convention in Atlanta, Ga., Oct. 25.

The *American Society of Mechanical Engineers* will hold its stated annual meeting in New York, Nov. 2. Arrangements for the meeting will be announced hereafter.

Dividends.

Dividends have been declared as follows:

Long Island, 1 per cent., payable Nov. 1. Transfer books close Oct. 20. This is the first dividend.

Delaware, Lackawanna & Western, 2 per cent., quarterly, payable Oct. 20.

Baltimore & Ohio, 5 per cent., semi-annual, payable Nov. 1.

Classification Meeting.

A dispatch from Chicago, Oct. 10, says: "The general freight agents of the roads comprised in the Southwestern, the Colorado Traffic and the Iowa Trunk Line Associations, met here to-day and adopted a uniform classification of freights to all points West and Southwest. Heretofore there has been one classification of freights to the Missouri River, and another west of the Missouri River. The change in classification will involve some alterations in rates, which will be reported to a future meeting."

Southwestern Railway Association.

Commissioner J. W. Midgley has called a meeting of the Southwestern, the Colorado Traffic and the Iowa Trunk Line Associations for Wednesday, Nov. 1. On that day the report of the Committee on Arbitration will be heard, and an effort made to elect an arbitrator. At the conclusion of this meeting, each of the above-named associations will hold separate meetings on successive days.

Southern Association, General Passenger & Ticket Agents.

The Southern Association of General Passenger Agents met in Cincinnati, Oct. 4, to consider Florida and Texas rates for the winter. Col. C. P. Atmore, of the Louisville & Nashville, was in the chair, and W. L. Danley Secretary. The following were present.

C. P. Atmore, Louisville & Nashville, President.
B. W. Wrenn, Western & Atlantic.
W. L. Danley, Nashville, Chattanooga & St. Louis.
James L. Taylor, Savannah, Florida & Western.
A. Pope, East Tennessee, Virginia & Georgia.
B. W. McCullogh, International & Great Northern.
D. C. Allen, South Carolina Railroad.
E. P. Wilson, Cincinnati, New Orleans & Texas Pacific.

There were also present by invitation the following general passenger agents, not members:

Wm. Hill, Chicago & Eastern Illinois.
Murray Keller, Louisville, New Albany & Chicago.
D. C. Roberts, Memphis & Little Rock.
S. S. Parker, Louisville & Nashville.
W. B. Shattuc, Ohio & Mississippi.
Sam. Stevenson, Cincinnati, Hamilton & Dayton.
John Egan, Cincinnati, Indianapolis, St. Louis and Chicago.

The consideration of Florida rates was taken up at once. It was agreed to put on round-trip tickets to Jacksonville from Cincinnati, Louisville, Pittsburgh, St. Louis, Parkersburg, Wheeling, Buffalo, Cleveland, Toledo, Detroit, Ft. Wayne, Dayton, O., Chicago, Terre Haute, Indianapolis, Evansville, Columbus, O., Nashville, Memphis, Little Rock and other points at 4 cents per mile for the round trip, or on a basis of 2 cents a mile for distance traveled. In all cases where there are two or more lines between given points, the short line to determine the mileage.

On the following day, after much discussion, a basis for making rates to Texas points was agreed on, and the further consideration of the schedule referred to a committee.

Master Car-Builders' Association.

The adjourned convention of this Association began its sessions at Niagara Falls on Tuesday, Oct. 10, with about 100 members present. Thirty companies sent "representative members" to the meeting, these 30 representing about 220,000 cars.

The chief business of the first and second day was the consideration of the report of the Committee on Constitution, which is given in full on another page. This report was fully discussed, and the amended Constitution and By-laws presented by the Committee were finally adopted, with a number of verbal amendments, which do not materially change their character.

Up to Wednesday evening no other action of importance had been taken. The convention was expected to adjourn on Thursday.

Western Weighing Association.

At the annual meeting of this Association in Chicago, Oct. 3, Capt. J. R. Wheeler, the Superintendent, reported that 557,799 cars had been weighed during the last year, against 405,983 the year previous, an increase of 151,816, or 32½ per cent. The expenses were $27,218.69, or a little less than 5 cents per car. Of these expenses $21,899 were for weighers' salaries. The average weight of car-lots during the year was 28,000 lbs., which is 5,000 lbs. more than the minimum which was accepted as a car-load when there was no weighing. At 10 cents per 100 lbs. for freight, this would make a saving of $5 per car, or $2,730,000, effected by the weighing.

A resolution was passed affirming that the work of the Association is no longer an experiment, but already a splendid success. The systematic inspection of the agents of the Association is reported to have tended to make the weighers and bill clerks of the several roads more careful in the performance of their duties, as it puts a check on it.

Joint Executive Committee Passenger Meeting.

A meeting of representatives of the companies belonging to the Joint Executive Committee assembled at Mr. Fink's office in New York, Oct. 10, to consider passenger business.

The first matter considered was the action of Chicago ticket brokers in combining to charge 50 cents less than the differential rate allowed by the Michigan Central, the Canada Southern and the Erie, and to turn as much travel as possible over this route, for the purpose of causing suspicion of cutting rates by the agents of the roads and a dissolution of the passenger combination, which, if successful, will destroy the business of the brokers. Suspicion was caused by the exceptionally large travel by this route, but after investigation those concerned were convinced that it was due to the scalpers' tactics.

The following resolution was passed:

"*Resolved*, That should it appear that tickets are being sold at reduced rates by the influence of any outside parties over any route to points between which differential rates have been established to such an extent as to increase the sales beyond the per cent. allowed such line on the basis of 1881 sales, then the differential rate by such line shall be reduced so as to equalize the business."

The Grand Trunk Railway objected to the steamship companies issuing orders for tickets over the railroads from interior points to the seaboard. It was urged that in consequence of the privilege to act as agents, heretofore granted to steamship companies, the business of certain railroads, particularly the Michigan Central, was increased beyond the percentage allowed in the pool. The following resolution was adopted:

"*Resolved*, That from and after Oct. 20 no orders for east-bound tickets, from differential fare points in the West to differential fare points in the East, shall be accepted from steamships or other agents, except such as may be especially authorized by mutual agreement."

The discussion of these two questions occupied the entire day Tuesday.

Wednesday the meeting decided to adopt "continuous train tickets" for all limited tickets, and a committee was appointed to prepare a form for such ticket. This ticket will be good only on the train for which it is sold and the nearest connecting trains, so that coupons cannot be cut off and sold separately.

Reports of ticket sales down to the end of September are not yet quite complete, but no complaint of the effect of the differential rates is made except from the Michigan Central-Canada Southern-Erie route, where the rates have not been maintained by the scalpers. By this route Mr. Fink announced that the rate would be advanced 50 cents, lessening by so much the allowed difference.

Application was made for a differential rate to and from St. Louis by the Louisville & Nashville line, lately completed between St. Louis and Louisville by the extension of the Louisville, New Albany & St. Louis to a connection with the St. Louis Division of the Louisville & Nashville.

ELECTIONS AND APPOINTMENTS.

Augusta, Laurens & Spartanburg.—At the annual meeting, Oct. 4, the following were chosen: President, E. F. Verdery, Augusta, Ga.; directors, I. W. Carlisle, G. Cannon, B. F. Kilgore, T. J. Moore, Spartanburg, S. C.; F. G. Fuller, W. Mills, W. A. Shands, R. P. Todd, Laurens, S. C.; T. F. Riley, Greenwood, S. C.

Baltimore & Potomac.—At a meeting of the board of directors held Oct. 2, A. W. Hendrix was appointed Cashier, to fill the vacancy caused by the death of W. J. Torrington, to take effect Oct. 1.

Buffalo, New York & Philadelphia.—At the annual meeting in Buffalo, N. Y., Oct. 4, the following directors were chosen: Henry Seligman, Isaac N. Seligman, Archer N. Martin, E. F. Winslow, W. B. Isham, John Patton, Bryce Gray, New York; J. W. Jones, Clarence H. Clark, E. A. Rollin, Philadelphia; Bronson C. Rumsey, J. F. Schoellkopf, Myron P. Bush, Buffalo. The retiring directors are: Sherman S. Jewett, William H. Glenny, C. J. Hamlin, Josiah Jewett, George J. Magee of Watkins; F. H. Root, Walter T. Wilson. The changes in the board are results of the important changes in the financial backing of this road which have taken place during the year.

Burlington, Cedar Rapids & Northern.—Mr. J. E. Utt is appointed General Freight Agent in place of A. L. Mahler, who has gone to the Minneapolis & St. Louis. Mr. Utt was recently on the Rock Island road.

California Southern.—Mr. Berkeley Powell has been appointed Master Mechanic, and will also have charge of the Car Department. He will take charge in about two weeks.

Central Iowa.—Mr. R. S. McMurray has been appointed General Passenger Agent. Mr. C. A. Jewett will hereafter be General Freight Agent only.

Chicago & Eastern Illinois.—The dispatch concerning this company's election last week was not quite correct. Mr. F. W. Huidekoper was re-elected a director, the election of James S. Fraser being in place of Peter Hegeman, resigned.

The full board is now as follows: Franklin H. Story, D. J. Mackey, E. F. Leonard, Thomas W. Shannon, James S. Fraser, J. G. English, F. W. Huidekoper, John U. Brookman, J. A. Gambrill.

Chicago, Milwaukee & St. Paul.—The following appointments are announced in the Passenger Department: Charles A. Brown, New England Passenger Agent, with office in Boston; W. K. Leslie, Traveling Passenger Agent for New York and New Jersey, office in Rochester, N. Y.; E. F. Richardson, General Agent for New York city and suburbs.

Cincinnati, Hamilton & Dayton.—Vice-President C. C. Waite will, for the present, act as Superintendent in place of J. H. Barrett, resigned.

Columbia & Greenville.—Mr. J. T. McCants has been appointed Master of Transportation in place of J. P. Meredith, resigned.

Concord & Portsmouth.—This company has elected Stephen Keurick President; Wm. H. Hackett, Clerk; Moody Currier, Treasurer. The road is leased to the Concord Company.

Connotton Valley.—Mr. F. W. Jones is appointed General Road-Master, with office at Canton, O. He was recently on the Cleveland, Akron & Columbus.

Florida Southern.—Mr. F. A. Johnson has been appointed Acting Cashier and Auditor, with office at Palatka, Fla.

Gulf, Colorado & Santa Fe.—At the annual meeting in Galveston, Tex., Oct. 4, the following directors were chosen: W. L. Moody, Waters S. Davis, John D. Rogers, George Sealy, H. Kemper, Leon Blum, Henry Rosenberg, M. Kopperl, J. E. Wallis, John Sealy, R. S. Willis, Walter Gresham, S. Heidenheimer.

Houston Belt.—The officers are: President, T. R. Morris; Vice-President and General Manager, S. L. Worden; Secretary and Treasurer, J. E. Fisher. Office in Houston, Tex.

Illinois Midland.—Mr. Samuel C. Smith has been appointed Auditor in place of W. F. Smith, resigned.

Mr. O. E. Grady has been appointed Master of Transportation.

Indianapolis & St. Louis.—The following additional appointments are announced, all of them being officers of the Cleveland, Columbus, Cincinnati & Indianapolis also: O. B. Skinnar, Traffic Manager, and A. J. Smith, General Passenger Agent, with offices at Cleveland; H. W. Gays, General Freight Agent, with office at St. Louis; Edgar Hill, Assistant General Freight Agent, and P. A. Hewitt, Auditor, with offices at Cleveland; C. C. Gale, Superintendent, with office at Indianapolis.

Mr. T. W. Ranson is appointed Master Machinist with office at Mattoon, Ills. Appointment took effect Sept. 27.

Iron Steamboat Co.—The following circular is dated New York, Sept. 30:

"Frank C. Drane has been appointed General Passenger and Ticket Agent of this company, vice J. V. Freeman, resigned. Connecting lines will, in future, please render reports to, and make settlements with, the General Passenger and Ticket Agent, at his office, New Pier 1, North River, New York City. Appointment to take effect Oct. 1."

Kansas City, Ft. Scott & Gulf.—Mr. M. L. Sargant is appointed General Freight Agent in place of J. N. Watkins, resigned.

Lake Shore & Michigan Southern.—Mr. W. H. Canniff, Superintendent of the Lansing Division, has been appointed also Superintendent of the Ft. Wayne Branch, the former Ft. Wayne & Jackson road.

Lehigh & Hudson River.—Mr. N. L. Furman has been appointed Superintendent of Transportation, with office at Warwick, Orange County, N. Y.

Louisville & Nashville.—The full list of officers chosen last week is: President, C. C. Baldwin; Vice-President, Milton H. Smith; Second Vice-President, George A. Washington; Secretary, Willis Ranney; Assistant to the President and Assistant Secretary, A. M. Quarrier.

Mexican Central.—Mr. James N. Lauder has been appointed Superintendent of Motive Power and Rolling Stock of the Northern Division, with office at Paso del Norte, Mexico. He was formerly Master Mechanic of the Northern (N. H.) Railroad, and recently of the Boston, Lowell & Concord Line. He is a prominent member of the Master Mechanics' Association, and has served as Vice-President and President.

Mr. Charles F. West has been appointed Superintendent of Telegraph and Chief Train Dispatcher of the Northern Division. He has been for some time Chief Train Dispatcher of the Northern (N. H.) road.

Milwaukee & Northern.—Mr. N. S. Kimball has been appointed Master Mechanic, with office at Green Bay, Wis. He has been on the Chicago, Milwaukee & St. Paul for a number of years.

Minneapolis & St. Louis.—At the annual meeting in Minneapolis, Minn., Oct. 3, the following directors were chosen: R. R. Cable, H. H. Porter, W. D. Washburn, A. B. Stickney, Benjamin Brewster, David Dows, W. W. Nair, W. R. Merriam, H. R. Bishop. Subsequently a meeting of the directors was held, at which officers were elected as follows: President, R. R. Cable; Vice-President, A. B. Stickney; Treasurer, Joseph Gaskell; Secretary, Joseph Gaskell; Executive Committee, R. R. Cable, W. D. Washburn, H. R. Bishop, H. H. Porter. Mr. Joseph Gaskell has been elected Secretary in place of Mr. M. P. Hawkins.

Mr. J. A. Hanley is appointed General Freight Agent in place of Mr. A. H. Bode, who has gone to the St. Paul, Minneapolis & Manitoba.

New York, Chicago & St. Louis.—Mr. R. B. Organ, late with the Canada Southern, has been appointed Live Stock Agent in Chicago.

New York, New Haven & Hartford.—Mr. Wm. H. Stevenson is appointed Superintendent of the New York & New Haven Division, in place of John T. Moody, resigned. Mr. O. M. Shepard (recently on the New York & New England) succeeds Mr. Stevenson as Superintendent of the Shore Line Division.

New York, Texas & Mexican.—The officers are now as follows: President, P. Moneta; Vice-President, D. E. Hungerford; General Contractor, J. Telfener; Traffic Manager, Oscar White; Secretary, Charles K. Wescott. Offices in Victoria, Texas.

Northern Central.—At a meeting of the board of directors held Sept. 22, A. W. Hendrix was appointed Cashier, to fill the vacancy caused by the death of W. J. Torrington, to take effect Oct. 1.

Northern Pacific.—Mr. J. T. Odell is appointed Superintendent of the Dakota Division in place of C. T. Hobart, resigned.

Ottumwa & Kirkville.—The officers are: President, T. J. Potter; Vice-President and Manager, J. C. Osgood: Secretary, C. M. Schenck; Treasurer, Lyman Cook.

Palisades.—The officers of this new company are: President, William B. Dana; directors, John S. Lyle, William Walter Phelps, S. V. White, George S. Coe, W. S. Opdyke, William O. Allison, H. W. Banks, E. A. Brinkerhoff; Secretary, William O. Allison; Treasurer, George S. Coe.

Peoria, Decatur & Evansville.—General Passenger Agent B. B. Anderson having resigned, the office is abolished. The Passenger Department will hereafter be under the charge of H. C. Parker, Traffic Manager.

Raleigh & Augusta Air Line.—At the annual meeting in Raleigh, N. C., October 5, the following were elected: President, John M. Robinson; directors, Joseph B. Batchelor, Paul C. Cameron, W. W. Chamberlain, Walter Clark, W. J. Hawkins, R. S. Tucker; Secretary and Treasurer, W. W. Vass; General Manager, J. C. Winder.

Raleigh & Gaston.—At the annual meeting in Raleigh, N. C., Oct. 5, the old board was re-elected, as follows: President, John M. Robinson; directors, Joseph B. Batchelor, Paul C. Cameron, W. W. Chamberlain, Walter Clark, W. J. Hawkins, R. S. Tucker. The board re-elected W. W. Vass Secretary and Treasurer; J. C. Winder, General Manager.

Rock Island & Peoria.—Mr. A. N. Morton has been appointed General Freight and Ticket Agent for this company, vice James V. Mahoney, resigned. All reports and communications pertaining to this department will be addressed to him at Rock Island, Ill. To take effect Oct. 5.

Sharpsville.—Mr. Frank Pierce has been appointed Secretary, and Charles E. Agnew Treasurer, in place of Daniel Agnew, deceased.

Warren & Farnsworth Valley.—The office of this company is at Warren, Pa.; the officers are as follows: President, L. D. Wetmore; Treasurer, G. N. Parmlee; Auditor, C. P. Wilkins; Superintendent, A. D. Wood; Assistant Superintendent, Charles Kennedy.

Western Union Telegraph.—At the annual meeting in New York, Oct. 11, the following directors were chosen: Norvin Green, Thomas T. Eckert, Edwin D. Morgan, John Van Horne, Augustus Schell, Harrison Durkee, Jay Gould, Russell Sage, Alonzo B. Cornell, Sidney Dillon, Cyrus W. Field, John Pender, M.P., Henry Weaver, Percy R. Pyne, Robert Lenox Kennedy, Hugh J. Jewett, J. Pierpont Morgan, Frederick L. Ames, Edwin D. Worcester, William D. Bishop, C. P. Huntington, George B. Roberts, Zalmon G. Simmons, Samuel Sloan, Erastus Wiman, Amasa Stone, George J. Gould, Chauncey M. Depew, James W. Clendenin, George T. Baker.

Western Weighing Association.—At the annual meeting in Chicago, Oct. 3, the following Executive Committee was chosen: H. C. Wicker (Chairman), Chicago & Northwestern; J. T. Sanford, Chicago, Rock Island & Pacific; W. G. Swan, Chicago, Milwaukee & St. Paul; J. H. Hyland, Chicago, St. Paul, Minneapolis & Omaha; George Olds, Missouri Pacific; A. C. Bird, Wabash, St. Louis & Pacific; T. H. Malone, Wisconsin Central.

Wheeling & Lake Erie.—The following circular announces officially some appointments already noted:

"The following appointments are made to take effect Oct. 1: Mr. M. D. Woodford, General Superintendent, with headquarters at Toledo, O. Officers and employés will respect his instructions accordingly.

"Mr. C. V. McKinlay having resigned the position of General Freight and Ticket Agent, Mr. James M. Hall is appointed General Passenger Agent, and Mr. A. G. Blair General Freight Agent. All business communications appertaining to the departments under their respective charges should be addressed to them at Toledo, O."

Wheeling & Lake Erie and Cleveland & Marietta.—In order that the management and operation of these railroads may be as nearly indentical as possible, the following named officers will, from and after Oct. 3, have charge of their respective departments upon both roads: A. G. Blair, General Freight Agent, with office in Toledo; J. M. Hall, General Passenger and Ticket Agent, with office in Toledo; Lewis James, General Master Mechanic, in charge of shops, engines and machinery, with office at Creston, O.; W. H. Hartman, Train Dispatcher and Chief Operator, with office at Massillon, O.

The following appointments are made upon the Cleveland & Marietta: J. C. Webb, Auditor (vice D. B. Little, resigned), with office at Cambridge, O.; H. J. Booth, General Agent at Marietta, in charge of the company's interests at that point and vicinity.

PERSONAL.

— Mr. W. F. Smith has resigned his position as Auditor of the Illinois Midland road.

—Mr. B. B. Anderson has resigned his position as General Passenger Agent of the Peoria, Decatur & Evansville road.

— Mr. Daniel Agnew, Secretary and Treasurer of the Sharpsville Railroad Company, died at Sharpsville, Pa., Aug. 24.

—Mr. M. P. Hawkins has resigned his position as Secretary of the Minneapolis & St. Louis Company, after several year's service.

—Mr. J. H. Barrett has resigned his position as Superintendent of the Cincinnati, Hamilton & Dayton road. No cause for this resignation is assigned.

—Mr. W. F. Smith has resigned his position as General Eastern Passenger Agent of the Central Vermont Company, to accept a position with the Grand Trunk Company.

—Mr. Robert H. Baker, a well-known manufacturer of Racine, Wis., died in that city Oct. 5, aged 43 years. He has been since 1880 a government director of the Union Pacific Company.

—Mr. John F. Moody, long Superintendent of the New York and New Haven Division of the New York, New Haven & Hartford road, has resigned his position. The cause of his retirement has not been made public.

—Mr. M. B. Cary, for six years past Assistant Genera Solicitor of the Chicago, Milwaukee & St. Paul Company has resigned that position, and will devote his whole time to the business of the Holbrook Manufacturing Company, of Chicago, of which he was recently chosen President.

—Mr. C. T. Hobart has resigned his position as Superintendent of the Dakota Division of the Northern Pacific, to become Managing Director of the Yellowstone National Park Association. He will also have charge of the National Park Branch of the Northern Pacific, when built.

—General Superintendent E. T. Jeffrey, of the Illinois Central, has issued the following:

"It is with feelings of the deepest regret that I announce to the officers and employés of this company the death of Mr. Samuel J. Hayes. Mr. Hayes held the position of Superintendent of Machinery in the service of this company for 26 years. He ably administered the affairs of the department, and by his just and manly qualities endeared himself to those associated with him. In honor of his memory, the various offices and shops will be draped in mourning for 30 days."

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods are reported as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Nine months ending Sept. 30:				
Atch., T. & S. F.	$10,412,198	$8,559,348	I. $1,852,850	21.5
B., Cedar R. & N.	1,976,033	1,602,296	I. 373,737	23.3
Central Iowa	848,132	679,876	I. 168,256	24.8
Central Pacific	18,983,619	17,063,092	I. 1,920,527	11.3
Ches. & Ohio.	2,402,425	2,031,220	I. 371,205	18.3
Chi. & Alton	5,818,484	5,466,704	I. 351,780	6.4
Chi. & East'rn Ill.	1,305,653	1,193,008	I. 112,645	8.5
Chi. & Gd. Trunk.	1,541,234	1,091,548	I. 449,686	41.0
Chi., Mil. & St. P.	14,100,000	12,010,538	I. 2,089,462	17.4
Chi. & Northwest.	17,272,007	15,633,596	I. 1,638,411	10.5
C., St. P., M. & O.	3,494,194	2,817,396	I. 676,798	24.0
Cin., Ind. St. L. & Chi.	1,919,953	1,755,177	I. 164,776	9.4
Cleve., Ak. & Col.	397,610	369,729	I. 57,881	18.7
Col., H. Vy. & T.	2,094,101	1,699,048	I. 395,053	23.2
Det., Lan. & No.	1,172,774	1,002,622	I. 170,152	17.0
Gulf, Col. & S. F.	915,364	661,273	I. 254,091	38.5
Hann. & St. Jo.	1,579,206	1,635,375	D. 56,169	3.4
Ill. Cen., Ill. lines.	5,135,141	4,932,140	I. 203,001	4.1
Iowa lines.	1,367,703	1,338,327	I. 29,376	2.2
Ind. Bloom. & W.	1,910,421	1,865,819	I. 44,602	2.4
Lake Erie & West.	1,085,557	1,041,492	I. 44,065	4.2
Long Island	1,773,845	1,533,196	I. 240,649	15.7
Louisv. & Nash.	9,323,034	8,122,410	I. 1,200,624	1'.8
Metropolitan Elev	2,049,445	1,843,000	I. 206,445	11.2
Mo. Pacific lines:				
Central Branch.	633,910	722,947	D. 89,037	12.3
Int. & Gt. No.	2,158,934	1,879,630	I. 288,314	15.2
Mo., Kan. & Tex.	4,373,785	3,843,296	I. 530,489	13 5
Mo Pac.	5,659,741	4,880,440	I. 773,301	15.7
St. L., I. M. & So.	5,146,963	5,221,653	D. 74,690	1.4
Tex. & Pacific.	3,340,570	2,787,630	I. 552,940	19.8
Mobile & Ohio.	1,324,599	1,624,498	D. 299,899	18.4
N. Y. Elevated.	2,419,608	2,144,813	I. 274,853	12.8
N. Y. & N. England	2,540,785	2,067,915	I. 472,870	22.5
Northern Pacific.	4,870,460	2,660,942	I. 2,209,578	83.1
Ohio Central.	745,130	458,414	I. 285,716	63.5
St. L., A. & T. H., Main Line.	986,004	1,090,665	D. 103,761	95.2
Belleville Line.	626,210	544,902	I. 81,308	14.9
St. L. & San F.	2,550,904	2,279,441	I. 271,463	11.9
St. P. & Duluth.	740,518	505,111	I. 235,407	46.6
St. P., Minn. & Man	6,118,864	3,236,459	I. 2,882,405	89.0
Scioto Valley.	393,332	309,962	I. 83,370	26.9
Tol., Cin. & St. L.	658,962	463,894	I. 192,068	41.0
Wab., St. L. & P.	12,285,011	10,391,883	I. 1,893,128	18.2
Month of September:				
Atch., Top. & S. F.	$1,302,535	$1,155 869	I. $146,668	12.7
Baltimore & Ohio.	1,759,291	1,642,634	I. 116,657	7.1
Bur., C. R. & No.	261,439	221,801	I. 39,638	17.8
Central Iowa	112,824	99,640	I. 13,184	13.2
Central Pacific.	2,474,000	2,185,303	I. 288,697	13.1
Ches. & Ohio.	305,365	247,145	I. 58,122	23.3
Chi. & Alton.	881,109	774,790	I. 106,319	13.8
Chi. & Eastern Ill.	172,777	150,915	I. 21,882	14.5
Chi., Mil. & St. P.	1,950,000	1,644,670	I. 305,380	18 5
Chi. & Northwest.	2,697,553	2,292,677	I. 204,376	8.9
C., St. P., M. & O.	482,997	373,370	I. 109,627	29.5
C., I., St. L. & C.	259,379	228,653	I. 30,726	13.4
Cleve., Ak. & C.	50,006	40,213	I. 9,793	24.4
Col., H. Vy. & T.	290,357	235,663	I. 54,694	22.9
Det., Lan. & No.	138,203	122,419	I. 15,784	13.0
East. T., V. & G.	317,130	296,240	I. 20,890	7.0
Ev. & Terre H.	75,345	70,080	I. 5,265	7.5
G. B., W. & St. P.	34,881	34,786	I. 95	0.3
Gulf., Col. & S. F.	194,653	120,196	I. 74,457	62.0
Hann. & St. Jo.	239,196	215,1 3	I. 24 093	11.2
Ill. Cent., Ill. lines	643,494	646,411	D. 2,917	0.4
Iowa lines.	184,744	182,437	I. 2,307	1.2
Ind. Bloom. & W.	273,100	247,932	I. 25.168	10.1
Lake Erie & West.	152,196	124,280	I. 27,916	22.5
Long Island.	241.034	213,621	I. 27,413	12.3
Louisv. & Nash.	1,107,985	951,566	I. 156,419	16 4
Metrop. Elevated.	198,681	218,977	D. 20,296	9.2
Mo. Pacific lines:				
Central Branch.	100,248	84,298	I. 15.950	18.9
Int. & Gt. No.	350,835	277,296	I. 73,539	26.6
Mo., Kan. & Tex.	618,701	549,332	I. 69,369	12.6
Mo. Pacific.	801,416	625,133	I. 176,283	28.0
St. L., I. M. & So.	724,160	708,325	I. 15,835	2.2
Tex. & Pacific.	470,613	345,790	I. 124,823	35.8
Mobile & Ohio.	160,031	210,262	D. 50,231	23.9
N. Y. Elevated.	280,008	225,321	I. 54,687	24.3
N. Y. & N. Eng.	338,490	299,573	I. 38,917	13.0
Northern Pacific.	789,700	534,363	I. 255,337	47.8
Ohio Central.	119,377	58,383	I. 60,994	10.5
Ohio Southern.	38.511	26,634	I. 11,877	44.0
St. L., A. & T. H., Main Line.	134,880	129,984	I. 4,896	3.4
Belleville Line.	82,779	66,384	I. 16,395	24.5
St. L. & S. Fran.	336,804	270,064	I. 57,741	20.6
St. P. & Duluth.	119,802	65,095	I. 54,707	84.1
St P., Minn. & Man	832,776	485,730	I. 347,040	71.4
Scioto Valley.	54,357	52,640	I. 1,717	3.2
Tol., Cin. & St. L.	92,610	67,666	I. 24,944	45.3
Wab., St. L. & P.	1,682,382	1,490,028	I. 192,354	12.8
First Week in October:				
Denver & R. G.	$157,396	$152,484	I. $4,912	3.2
Mil., L. S. & W.	18,450	18,010	I. 440	2.4
No. Pacific.	226,345	131,861	I. 94,484	71.6

Grain Movement.

For the week ending Sept. 30 receipts and shipments of grain of all kinds at the eight reporting Northwestern

markets and receipts at the seven Atlantic ports have been, in bushels, for the past seven years:

Year.	Northwestern receipts.	—Northwestern shipments.— Total.	By rail.	P. c. by rail.	Atlantic receipts.
1876....	6,479,942	4,660,252	1,650,858	35.4	4,093,200
1877 ..	6,686,166	6,141,867	924,512	15.0	5,828,503
1878....	6,516,744	5,623,837	1,165,641	20.8	6,751,531
1879....	8,354,792	4,994,530	1,485,981	29.8	8,538,381
1880....	9,171,857	6,192,815	2,026,090	32.7	6,616,781
1881....	5,914,832	3,589,227	2,241,992	62.5	5,173,070
1882...	6,133,168	3,634,552	1,348,494	37.1	3,903,484

The receipts of the Northwestern markets this year were a little larger than last year, but, with that exception, were smaller than in any corresponding week since 1875. They were the largest for four weeks this year, and have been exceeded in but three weeks of this year. They were doubtless swelled by the wheat corner at Chicago this year.

The shipments of these markets were a trifle larger this year than last, but with that exception were the smallest since 1875. They were a million bushels less than the week before, and the smallest since the middle of July. The rail shipments were also exceptionally small, but of the falling off of 1,029,000 bushels from the previous week, only 404,000 were in rail shipments. The shipments down the Mississippi were 91,562 bushels, or 2½ per cent. of the whole—the smallest for 11 weeks.

The Atlantic receipts were 1,270,000 bushels less than last year, and smaller than in any corresponding week since 1875. They were also 620,000 bushels less than in the previous week of this year, and the smallest since the third week of July. It is probable that the receipts this week were checked by the Chicago corner, and at New York they were restricted by a break in the Erie Canal.

Of the Northwestern receipts for the week Chicago had 57.9 per cent., St. Louis 12.4, Toledo 11.5, Milwaukee 7.5 Detroit 5.5, Peoria 4.7, and Cleveland 0.5 per cent. No receipts are reported at Duluth, which is probably an omission, as the week before its receipts were unusually large. Of the gain of 757,000 bushels over the previous week, 689,000 bushels was at Chicago, whose receipts were the largest of the year. The Milwaukee receipts were 40 per cent. more than the previous week, when they were larger than in any previous week since February. About one-half of the total receipts was wheat, and more than half of this was received at Chicago, Toledo and St. Louis having each about one-third as much. About one-fourth of the receipts was corn, and nearly five-sixths of this was received at Chicago.

Of the Atlantic receipts New Orleans had 26.8 per cent., New York 24.6, Baltimore 22.8, Montreal 16.3, Boston 5.5, Philadelphia 3.7, and Portland 0.3 per cent. Only once or twice before has New Orleans received more than any other place, and this time it is because the New York receipts were extraordinarily small. They were, indeed, the smallest since last April, and little more than a third as great as in the previous week, the chief cause of which doubtless was the break in the canal. The Montreal receipts were unusually large—more than twice as great as the week before, and with one exception the largest of the year. The Philadelphia receipts were 40 per cent. less than the week before, and not one-fifth the average in August. The Baltimore receipts were the largest for four weeks. Only twice before have the New Orleans receipts been as large, and they are greater for this single week than in May and June or June and July together. It is not easy to understand how receipts can have been so great there; the recorded shipments down the Mississippi for the four weeks previous amounting to about the same as receipts at New Orleans in this single week.

Of the exports this week 44.9 per cent. were from New York, 22.7 from Baltimore, 12.5 from Montreal, 9.4 from New Orleans, 6.9 from Philadelphia, and 3.6 per cent. from Boston.

For the week ending Oct. 4 the exports from these ports were 3,716,162 bushels of grain and 110,631 barrels of flour this year, against 2,488,195 bushels and 63,439 barrels last year, and 5,760,784 bushels and 64,346 barrels in 1880.

For the week ending Oct. 7 receipts and shipments at Chicago and Milwaukee have been:

	—Receipts.— 1882.	1881.	—Shipments.— 1882.	1881.
Chicago.....	2,655,977	3,809,094	2,672,981	1,755,148
Milwaukee.....	592,285	489,056	241,337	215,311
The two.....	3,248,262	4,289,150	2,914,318	1,970,459

The receipts were thus nearly a million bushels less and the shipments a million bushels more than last year.

For the week ending Oct. 7 receipts and shipments at Buffalo were:

	—Receipts.— 1882.	1881.	—Shipments.— 1882.	1881.
By rail..	347,500	629,300	847,900	1,392,500
By water	1,955,000	748,100	1,499,500	633,500
Total.....	2,302,500	1,377,400	2,347,400	2,026,000

The rail receipts this year are 283,000 bushels (45 per cent.) *less* than last year; the lake receipts 1,207,000 bushels (161 per cent.) *more*. The rail shipments are 544,600 bushels (39 per cent.) less; the canal shipments 866,000 bushels (137 per cent.) more.

For this week, ending Oct. 7, receipts at four Eastern ports have been for three years:

Bushels:	New York.	Boston.	Phila.	Baltimore.	Total.
1882.. ..	2,506,129	273,875	52,350	501,118	3,333,472
1881.....	2,757,430	464,900	295,050	502,114	4,019,494
1880.....	3,887,208	441,422	711,250	738,661	5,778,571
P. c. of total:					
1882. ..	75.2	8.2	1.6	15.0	100.0
1881 . .	68.6	11.6	7.3	12.5	100.0
1880.....	67.3	7.6	12.3	12.8	100.0

Philadelphia and Baltimore together received this year 16.6 per cent. of the whole, against 19.8 per cent. last year, and 25.1 in 1880. Of the New York receipts 926,009 bushels (37 per cent.) were by rail this year, against 1,267,359 bushels (46 per cent.) last year, and 833,348 bushels (21½ per cent.) in 1880. The total receipts everywhere are small, but especially at Philadelphia. The repair of the canal break, by which the week before the receipts were limited to 58,200 bushels, permitted 1,578,328 bushels to arrive at New York by that route.

For the ten weeks since July receipts and shipments of wheat, corn and oats, at Indianapolis, Peoria, Chicago, Milwaukee, Detroit and Toledo have been, in bushels:

Week to	—Receipts.— Wheat.	Corn.	Oats.	—Shipments.— Wheat.	Corn.	Oats.
Aug. 7...1,784,228	1,004,792	318,235	2,348,733	955,051	442,577
Aug. 14...	906,261	1,087,498	535,490	1,332,449	955,102	492,523
Aug. 21...1,188,853	1,370,026	1,372,093	1,297,893	1,185,678	883,174
Aug. 28...1,893,983	1,548,283	1,908,715	1,243,804	1,246,792	1,644,622
Sept. 4...2,424,120	1,649,956	1,991,790	1,82 ,105	1,361,477	1,573,383
Sept. 11...2,245,314	1,437,744	1,168,715	1,304,307	701,007	1,463,396
Sept. 18...2,128,277	1,279,105	896,459	1,797,394	1,233,789	966,963
Sept. 25...2,129,194	1,550,142	688,750	1,799, 87	620,394	949,941
Oct. 2...2,594,197	1,207,431	782,496	1,502,891	925,461	692,639
Oct. 9...1,753,063	582,385	689,941	1,530,909	999,929	762,673

There is a great falling-off in the wheat receipts in the last week, when they were the smallest for seven weeks and nearly a third less than the week before, when, however, they were artificially stimulated by the Chicago corner. But this decrease in corn receipts is even larger in proportion, and these receipts are much less than in any other of the ten weeks; there is also some decrease in receipts of oats. The shipments, on the other hand were all a little larger than the week before.

For the three months of the California crop year to Oct. 1. San Francisco exports were as follows, wheat in bushels and flour in barrels, flour being reduced to wheat in the totals:

	1882.	1881.	Inc. or Dec.	P.c.
Flour....	325,993	213,682	I. 112,311	52.6
Wheat.....	6,404,453	3,518,848	D. 2,114,395	24.9
Total.....	8,034,418	9,587,258	D. 1,552,840	16.2

Exports of barley by sea for the three months were 79,347 centals, against 13,725 last year. Overland exports for July and August were 3,812 centals.

Coal Movement.

Anthracite coal tonnages are reported as follows for the nine months ending Sept. 30, the tonnage in each case being only that originating on the line to which it is credited:

	1882.	1881.	Inc. or Dec.	P. c.
Phila. & Reading.. ...	4,980,051	5,049,642	D. 69,591	1.4
Shamokin Div., No. Central ..... Summit Branch	931,303	774,996	I. 156,307	20.2
Sunbury, Hazleton & Wilkesbarre....	37,667	9,386	I. 28,281	300.1
Pennsylvania Canal..	364,041	326,646	I. 37,395	11.5
Central of N. J., Lehigh Div.....	3,334,903	3,296,880	I. 38,023	1.2
Lehigh Valley.....	4,293,906	4,077,041	I. 216,865	5.3
Pennsylvania & N. Y.	143,410	71,627	I. 71,783	100.3
Del., Lacka. & West..	3,313,105	3,118,865	I. 194,240	6.2
Del. & Hud. Canal Co.	2,563,450	2,639,764	D. 76,314	2.9
Pennsylvania Coal Co.	1,023,109	1,010,975	I. 12,134	1.2
State Line & Sullivan.	43,231	46,532	D. 3,301	7.1
Total anthracite. ...21,028,176		20,422,354	I. 605,822	3.0

Of the more important companies the Reading and the Delaware & Hudson show small decreases; the Lackawanna and the Lehigh Valley have gained considerably, and the others slightly.

The total tonnage of anthracite for the corresponding period for six years has been:

1882....	21,028,176	1879.....	19,282,150
1881.....	20,422,354	1877.....	12,147,543
1880.....	16,756,073	1876.... .	14,275,063

The present year shows an increase over 1877, the period of greatest depression, of 8,880,633 tons, or 73.1 per cent.

The anthracite coal tonnage of the Belvidere Division, Pennsylvania Railroad, for the nine months, was as follows:

	1882.	1881.	Increase.	P. c.
Coal Port for shipment	67,727	51,768	15,959	30.7
S. Amboy for shipment....	550,339	496,384	53,955	10.9
Local points on N. J. lines..	529,746	516,727	13,019	2.5
Co.'s use on N. J. lines....	95,322	82,633	12,689	15.0
Total.....	1,243,134	1,147,512	95,622	8.3

Of the total this year 1,022,560 tons were from the Lehigh Region, and 220,574 tons from the Wyoming Region.

Actual tonnage passing over the Pennsylvania & New York road for the ten months of its fiscal year from Dec. 1 to Sept. 30 was as follows:

	1882	1881.	Inc. or Dec.	P. c.
Anthracite...	880,768	866,270	I. 14,498	1.7
Bituminous.....	296,848	347,111	D. 50,264	14.5
Total.....	1,177,616	1,213,382	D. 35,766	2.9

The larger part of the anthracite is received from the Lehigh Valley road.

The general course of the anthracite trade so far this year seems to indicate that the trade to the East and the sea-board has been about stationary as compared with last year. Whatever increase there has been has come from the trade westward.

Semi-bituminous coal tonnages, reported for the nine months are as follows:

	1882.	1881.	Inc. or Dec.	P.c.
Cumberland, all lines.....	865,050	1,543,544	D. 678,494	44.0
Huntingdon & Broad Top.	211,262	157,164	I. 54,098	34.5
East Broad Top	67,080	61,347	I. 5,733	9.4
Tyrone & Clearfield.....	2,086,642	1,777,016	I. 309,626	17.4
Bellefonte & Snow Shoe..	165,997	88,037	I. 77,960	88.6
Total semi-bituminous..	3,396,031	3,627,108	D. 231,077	6.4

The loss in Cumberland this year resulting from the long strike has been too great to admit of the possibility of making up the deficiency before the end of the year. The Broad Top and Clearfield regions have profited, their increase being partly due to the deficiency in Cumberland.

Actual tonnage passing over the Huntingdon & Broad Top road for the nine months was as follows:

	1882.	1881.	Inc. or Dec.	P.c.
Broad Top coal.....	211,262	157,164	I. 54,098	34.5
Cumberland coal.....	129,666	237,426	D. 107,760	45.5
Total.....	340,928	394,590	D. 53,662	13.3

The Broad Top coal is mined on the line; the Cumberland is carried through from Mt. Dallas to Huntingdon for the Pennsylvania Railroad.

Bituminous tonnages reported for the nine months are as follows:

	1882.	1881.	Inc. or Dec.	P.c.
Barclay R. R. & Coal Co.	291,704	309,820	D. 18,116	5.9
Allegheny Region, Pa. R. R.....	404,556	205,483	I. 199,073	97.1
Penn and Westmoreland	940,050	668,696	I. 271,354	40.5
West Penna. R. R.....	253,952	226,818	I. 27,134	11.9
Southwest Penna. R. R..	76,277	20,594	I. 55,683	270 3
Pittsburgh Region, Pa. R. R.....	486,685	493,960	D. 7,275	1.5
Total bituminous.....	2,453,274	1,925,371	I. 527,903	27.4

These reports include nothing west of Pittsburgh and only part of the Pennsylvania bituminous regions. No reports are made for any of the great bituminous regions west of Pennsylvania.

Coke tonnages for the nine months are reported as follows:

	1882.	1881.	Inc. or Dec.	P.c.
Snow Shoe..	15,978	8,002	I. 7,967	99.7
Allegheny Region, Pa. R. R.....	83,397	73,340	I. 10,057	13.8
Penn and Westmorel'd	189,728	149,474	I. 40,252	26.8
West Penna. R. R ...	87 084	89,879	D. 2,795	3.1
Southwest Penna. R. R.	1,321,647	1,043,917	I. 277,730	26.6
Pittsburgh Region, Pa. R. R.....	429,340	437,386	D. 8,026	1.8
Total coke.....	2,127,172	1,801,978	I. 325,194	18.1

These tonnages are all over the Pennsylvania Railroad and its branches.

The coal tonnage of the Pennsylvania Railroad for the nine months was as follows:

	1882.	1881.	Increase.	P.c.
Anthracite	1,311,918	1,030,820	281,098	27.3
Semi-bituminous.....	2,599,259	2,127,509	471,750	22.2
Bituminous.....	2,161,559	1,615,551	546,008	33.8
Coke..	2,127,172	1,801,978	325,194	18.1
Total.....	8,199,908	6,575,858	1,624,050	24.7

This includes the main line and branches in Pennsylvania, but not the Philadelphia & Erie. The tonnage for September (four weeks) was 878,170 tons.

Cumberland coal tonnages for the week ending Oct. 7 were 44,028 tons. The total tonnage reported this year to Oct. 7 was 909,077 tons.

The Minnesota Passenger Trouble.

A dispatch from St. Paul, Oct. 10, says: "There has been no change in the passenger rate situation since war was first declared. Chicago telegrams, reporting sales of Chicago tickets, by the Albert Lea route from St. Paul and Minneapolis at $3 and $4, have no basis in fact. Tickets have not been sold at more than $5 cut or commission. The prices asked yesterday by the scalpers were $8.50 for first-class tickets and $6.50 for second-class by the Albert Lea route. Special contracts have been made with some large mercantile house at less than these figures within a day or two, but what they were could not be ascertained."

Chicago-St. Louis Rates.

A dispatch from Chicago, Oct. 11, says: "A meeting of the representatives of the Chicago-St. Louis pool lines was held here to-day. A new tariff, which is a material increase over the present rates, was adopted. The details have not yet been completed, and the actual changes are withheld for the present."

Petroleum Exports.

The Bureau of Statistics reports the exports of petroleum for August and the eight months then ending to have been:

	1882.	1881.	Inc. or Dec.	P. c.
August.....	44,011,074	66,280,465	D. 22,269,291	33 6
Eight months.	350,098,750	317,079,651	I. 33,019,099	10.4

The *value* of the exports this year was but $756,606 (2½ per cent.) more than last year, the average value per gallon having fallen from 9.52 to 8.84 cents. In August the value of the exports was $2,363,509 (40 per cent.) less than last year, the average value per gallon having fallen from 9 cents last year to 8.18 cents.

Chicago Switching Charges.

At a joint meeting of the roads from the East and the West entering in Chicago held Tuesday, Oct. 3, the following schedule of charges for delivering cars off from the lines of the carrying company was adopted, and it has been accepted by all the Chicago roads, and went into effect Oct. 9:

"On all freight, including coal and coke and excepting live stock, consigned direct to parties at Union Stock Yards, Chicago, a charge of not less than $1 per car will be made for switching delivery at the yards, this charge in all cases to be added to the through rate regardless of the original point of shipment, and allowed to the terminal road in its addition to its proportion of such rate, and must be shown separately on waybill as a delivering expense. All connections must provide for same in contracts and bills of lading.

"On all property consigned to Chicago and reconsigned to the Union Stock Yards a charge of not less than $3 per car will be made for switching delivery at the yards.

"All car-load freight consigned direct to points beyond Chicago will be delivered free of switching to the connecting road.

"All coal and coke consigned to parties in Chicago, and upon which orders are given for reconsignment to points beyond previous to the arrival of the property in Chicago or at the yards of the roads near Chicago, will be delivered to the connecting road free of switching.

"All coke, lumber, staves, heading and like freight consigned to parties in Chicago, upon which orders are given for reconsignment to points beyond after the arrival of the property in Chicago, or at the yards of the roads near Chicago, will be charged not less than $2 per car for switching to the connecting road.

"All coke, lumber, staves, heading and like freight consigned to Chicago parties and reconsigned by them to points in and around Chicago which are beyond the rails of the carrying line, will be charged $2 per car for switching delivery to connecting line, regardless of whether the order for reconsignment or delivery is given prior to the arrival of the freight at Chicago or not."

West-bound Differentials by the New London Route.

The Commissioner, Albert Fink, has issued the following circular in behalf of the Trunk Line Executive Committee:

"By an agreement with the Central Vermont and Grand Trunk Railroad Companies, the following differences below the established all-rail rate will be made on west-bound business from New York via the New London route, taking effect Monday, Oct. 9, 1882, and superseding the present differentials via that route:

	First class.	Second class.	Third class.	Fourth class.	Sugar, molasses, etc.
Detroit, Toledo and Canadian points	8	6	4	3	3
Chicago and beyond.....	10	8	6	4	4
Cincinnati, Indianapolis, Louisville, etc.....	10	8	6	5	5

The regular rates by the trunk lines are:

	—Class.— 1.	2.	3.	4.	Sugar and coffee.
Detroit and Toledo. 42	35	28	21	18
Chicago..... 60	50	40	30	25
Cincinnati..... 55	46	37	28	23

The St. Paul Troubles.

There is competition among the roads between St. Paul and Chicago on the east-bound passenger business, and it is said that tickets have been sold by the Minneapolis & St. Louis and Rock Island route by agents at considerably below the regular price, the roads paying very large commissions. The other roads claim to have maintained the rates. The "Northwestern Association" did not include the east-bound passenger traffic.

There seems to have been no settlement of the difficulties connected with the east-bound freight mentioned last week, the St. Paul having been charged with avoiding the maintenance of through rates from St. Paul and Minneapolis to Chicago by making a local rate on wheat to Southwestern Minnesota mills, and another on flour from these mills to Chicago, the sum of which is less than the through rate. It is not believed, however, that a railroad war will result.

Excursion Business to the St. Louis Fair.

During the six days ending Oct. 7—"Fair week"—there were handled at the Union depot in St. Louis 5,180 passenger cars, that number coming and going out. The heaviest day's business was on Tuesday, when 1,253 coaches came in. The Missouri Pacific brought the largest number, 171, the Chicago & Alton 143, the Vandalia Line 113, and the Indianapolis & St. Louis 107, the 10 other roads bringing less than 100 cars each.

Grand Trunk Tickets.

Mr. James Stephenson, General Passenger Agent of the Grand Trunk Railway of Canada, has issued the following circular to connecting lines: "On account of the amalgamation of the Grand Trunk and Great Western railways of Canada, which is now an accomplished fact, I have to point out to you that tickets to all points east of Buffalo via the Grand Trunk Railway having a coupon reading to Buffalo are now valid via Suspension Bridge. We shall protect the present issue held by passengers going by that route, but I have to request that future issues be printed Grand Trunk Railway, Detroit or Port Huron to Buffalo and Suspension Bridge. On Buffalo proper via this route, coupon to Suspension Bridge and coupon over the New York Central or Erie railways to Suspension Bridge and Buffalo will be necessary."

THE SCRAP HEAP.

Locomotive Building.

The Baldwin Locomotive Works in Philadelphia last week delivered two fast passenger engines to the Kentucky Central road.

The Rogers Locomotive Works in Paterson, N. J., last week delivered a freight engine to the Cape Fear & Yadkin Valley road.

The New York, Lake Erie & Western shops at Susquehanna, Pa., have begun to build 50 new engines for the road.

During September 48 locomotives were shipped from Paterson, N. J., of which 21 came from the Rogers Locomotive Works, 20 from the Cooke and 7 from the Grant Works.

Car Notes.

The Vandalia Line shops at Terre Haute, Ind., have just turned out two very handsome passenger cars for the road.

The Potomac Manufacturing Co., which is building steel works at Alexandria, Va., expects to engage in the manufacture of steel car-wheels, steel tires and axles.

The Union Foundry & Pullman Car-Wheel Works at Pullman, near Chicago, have a foundry 875 ft. long and 75 ft. wide, with several wings 75 ft. in depth. It will have a capacity of 200 tons of castings a day.

The Chicago & Alton shops in Bloomington, Ill., are building six very handsome chair cars for use on the road.

During the past week the Jackson & Sharp Co., Wilmington, Del., has shipped to the Savannah, Florida & Western road three postal cars, built and equipped after plans and specifications furnished by the United States Post-office Department. A train of passenger, combination and baggage cars has also been sent to the Seaboard & Raleigh road.

The Harlan & Hollingsworth Co. at Wilmington, Del., is building a very large iron transfer boat, which will be sent to Oregon for the Northern Pacific road. It will be large enough to carry an entire passenger train at one trip.

Iron and Manufacturing Notes.

Mr. Edward R. Andrews has established the Old Dominion Creosoting Works at Norfolk, Va., and has removed there the establishments which he formerly had at Boston and Elizabethport, N. J. The new works are at Money Point on the Elizabeth River, with a deep water front, will have a capacity for creosoting 30,000 ft. of lumber a day. The New York office will be continued at No. 24 Park place.

The firm of King & McTighe has been dissolved, and the new firm of Wilson, King & Kelly formed by Messrs. Thomas H. Wilson, formerly of the Philadelphia & Reading, A. H. King, and Daniel R. Kelly, late of the Phoenixville Bridge Works. The office of the new firm is at No. 169 Broadway, New York, and its business is dealing in rails, railroad equipment and supplies.

The Pittsburgh Furnace Co., has been organized to build a large blast furnace on the Monongahela River opposite Homestead station.

The Illinois Central has closed a contract with the North Chicago Rolling Mill Co. for 3,000 tons of steel rails.

The Colebrook Steel Manufacturing Co. will, it is said, build a large rolling mill at Pottsville, Pa.

The rolling mill at Beaver, Pa., has been started up, after a stop for repairs.

The leasehold estates of the Siemens-Anderson Steel Co., Robert J. Anderson and Anderson & Co., located on Try street and Second avenue, Pittsburgh, were sold by United States Marshal Rutan, to Alexander Nimick, for $9,050.

Reilly, Leidle & Co. have nearly completed their new Lucknow Forge four miles from Harrisburg, Pa. The forge will make blooms from scrap iron.

The Midland Rail & Tie Co. has been organized, with headquarters at Lima, O. The business of the company is tracklaying by machinery, using the system of Mr. George F. Harris. The officers of the company are S. H. Sturgeon, President and General Manager; J. C. Holland, Secretary; George Dempster, Vice-President; J. M. McKinney, Treasurer.

Charlotte Furnace at Scottdale, Pa., went into blast last week.

The Pittsburgh *Chronicle* of Oct. 6 says: "A company has been formed under the firm name of Anderson, DuPuy & Co. for the purpose of manufacturing all varieties of steel under the Siemens process. Mr. Robert J. Anderson is one of the partners, and Mr. DuPuy, a son-in-law of Dr. Hostetter, another. It is understood that the Doctor will give financial solidity to the new enterprise. Mr. Daniel Shaw, late manager of the Siemens-Anderson Works, is interested in the new company, and will probably be Superintendent. The company has secured property on the line of the Pittsburgh and Lake Erie Railroad at the mouth of Chartiers Creek, and operations will be commenced at once. Within 60 days it is expected to have the works in running order. The capacity of the new concern will be 10,000 tons of finished steel annually. It will be built after the most approved style, and will contain the latest and most improved of Dr. Siemens' furnaces."

The Ogden mine in Sussex Co., N. J., and the Dodge, Scofield, Welden and Hurd mines, which ship over the Ogden Mine Railroad, are all busy, and are making good shipments of ore.

The Hazard Manufacturing Co., of Wilkesbarre, Pa., has just completed for the Central Railroad of New Jersey, the largest wire rope ever made by machinery. It is 2½ in. in diameter and 5,780 feet long (over a mile). The weight of it is 32 tons. It will be used on the Ashley inclined plane, below Wilkesbarre, and will pull 24 nine-ton cars each trip.

The Rail Market.

Steel Rails.—The *Iron Age* says: "A large amount of business has been closed during the past week, one order for 40,000 tons having been taken by a company in Eastern Pennsylvania. Sales have also been made by two or three other companies, so that it is probable that, all told, 60,000 to 75,000 tons have been closed. There are several inquiries in the market, one for 20,000 tons and another for 10,000 tons, so that prospects are decidedly encouraging. Prices have stiffened and it is only in very exceptional cases that concessions are granted. For winter delivery $45 to $46 is quoted, with a slight advance on prompt delivery, or on small lots. It is stated, on the best authority, that at least 50,000 tons of the lots recently sold brought $45 at mill, some a still higher figure."

An order for 3,000 tons is reported at $50, delivered in Chicago.

Iron Rails.—The market is quiet and unchanged and quotations nominal.

Rail Fastenings.—Spikes are quoted at $3 to $3.10 per 100 lbs., with active demand. Fish-plates are $2.60 to $2.75 per 100 lbs., and track-bolts unchanged at $3.75 to $4 25.

Old Rails.—The market for old iron rails is unsettled. Sales are reported in Philadelphia at $27 to $28.50 per ton for tees, according to quality.

Running a Depot.

The other day an old lunatic named Schweitzer took possession of the Lehigh Valley depot at Allentown, Pa., and held it for an hour. He carried an ax and went behind the counter at the restaurant. When ordered out he showed fight and brandished the ax. A crowd gathered, and various expedients were tried to induce the old man to leave and surrender the ax. His eyes flashed and no one dared approach him. Coaxing and persuading failed to move him. They then tried to scare him, but there was no scare in him. When any one approached him he raised the ax threateningly and defied him. To frighten him some one pulled out a revolver and pointed it at him, but he only laughed mockingly. He then entered the ladies' department and the women fled in terror. Ropes were then procured and several attempts were made to lasso him, but he was too quick for them and dexterously warded off the rope. A window was then raised back of the madman, and while his attention was thus diverted other attempts were made to lasso him. Between closing the window and grappling with the ropes his back was turned toward part of the crowd and a man sprang on the counter and pounced on the old man, throwing him down. He was promptly disarmed and firmly bound. After a while he became calmer, and later in the morning was removed to the almshouse. He is a ragpicker, about 70 years old, and while known to be weak-minded was not considered violent. He had possession of the depot for a full hour and kept 50 men at bay.

Mr. Vanderbilt's Car.

The Chicago *Tribune* says:

The Vanderbilt 'twin cars,' as they are called, consist of a dining and a parlor car, sixty and seventy feet long respectively. The principal feature of the car is a large dining-room extending the whole width of the car, and elegantly fitted up. At one end are the kitchen and sleeping accommodations for the servants, wash-rooms, and other apartments, and at the other a porter's room. The platform between the dining and parlor cars is covered and inclosed, thus practically making one continuous car 130 feet long. The forward part of the parlor-car is taken up by two state-rooms of good size and comfortable as a room at the Grand Pacific. The remainder of the car is one apartment, which may be divided by folding-doors situated about one-third of the distance from the rear of the car. The windows are large, and French plate-glass is used exclusively. The car was built with a sort of piazza or covered platform in the rear, but this has been recently inclosed and made a part of the car. No detailed description of the furniture and general fixtures of the cars is necessary, except to say that they are elegant and comfortable, and that every inch of space is made available. Even when running at a speed of 60 miles an hour hardly any motion is felt, so perfect is the running gear. While on a trip the party do not travel at night, and unless in cities where the hotels are particularly good, remain in the cars, where their accommodations are as good as can be desired."

Trial of Suspension Car-Trucks.

Last Saturday a trial-trip of suspension car-trucks was made on sharp curves between Pullman and South Chicago. The trucks were under a St. Louis and San Francisco day coach built at the Pullman shops. Each truck had four 42-in. Allen paper wheels and had an 8-ft. wheel-base. A party consisting of Messrs. A. B. Pullman and A. Rapp, of the Pullman Construction Co., Dr. J. W. Chisholm, President, and R. A. Parke, Engineer, of the Suspension Car-Truck Co., and several others watched the trip with considerable interest. The trial consisted in running at a high rate of speed over sharp curves and switches. There was no grinding of wheels on rails, and it was impossible to tell, unless by close observation, when the car entered or left a curve. The sharpest curves were taken at high speed without any perceptible jar or shock. After this trial, another was made of a set of standard passenger trucks, also built by the Suspension Car-Truck Factory at Pullman. The latter are 33-in. wheels, 7 ft. base, and are commonly used under passenger cars. The parties who witnessed these trials were highly pleased with the action of the trucks, and they seem to be satisfied that by their use advantages will be obtained. The St. Louis & San Francisco has ordered these trucks for all their cars now being constructed.—*Chicago Tribune, Oct.* 10.

A Railroad Fight.

A dispatch from Baltimore, Oct. 9, says: "The Baltimore & Ohio Railroad Company have blocked for the time being the progress of Vanderbilt's road into the coke region. The above company has a branch road from Connellsville to Dawson, near the Pittsburgh Division, and running down the same side of the Youghiogheny River as the Vanderbilt road. It is called the West Youghiogheny Branch, and is completed to the Fort Hill Coke Works, nearly opposite Dawson, six miles north of Connellsville. A few days ago a force of workmen, in charge of Roadmaster Yeardley and Supervisor Adams, started to complete the branch road, though in continuing its construction it appears that it had to cross the new Pittsburgh & Youghiogheny Line. General-Manager W. T. Rainey, of the Coke Works, who is in favor of Vanderbilt's new road, disputed the company's claim to the right of way on certain property. The Baltimore & Ohio people, however, stuck to their claim and started to go ahead with the work. The coke men were about 20 in number, and when Roadmaster Yeardley commenced work in company with his assistants, a forcible attack was made on them, and the roadmaster was knocked down twice with a club. With only five or six men to back him, he knew he was no match for the heavy odds against him, and accordingly retired from the field. At an early hour Saturday the Baltimore & Ohio forces, increased to nearly 200 men, with Roadmaster Yeardley, returned to the scene, and this time secured possession. Vice-President Spencer, of the Baltimore & Ohio, stated this morning that the company had a perfect right and claim to the property. The coke companies, however, claim that Baltimore & Ohio Company is trying to prevent the entrance of the Pittsburg, McKeesport & Youghiogheny road into the coke region."

OLD AND NEW ROADS.

Atchison, Topeka & Santa Fe.—The length of the New Mexico & Arizona line has been somewhat overestimated in previous report. The following is an official statement, showing the stations on the line and the distances, measured from head-block of east connection with the Southern Pacific road at Benson, Ari.: Benson, 0; Canisteo, 6.913 miles; Contention, 14.938; Fairbanks, 17.965; Brookline, 23.482; Huachuca, 29.126; Elgin, 40.447; Sonoita, 48.70; Crittenden, 58.59; Sanfords, 68.614; Calabasas, 77.60; Nogales, 87.193; Boundary, 87.784 miles. The end of track Jan. 1 was 18.3 miles from Benson, so that 69.484 miles have been laid this year.

Atlantic & Pacific.—At latest reports the tracklayers had reached a point 23 miles westward from Williams, Ari., 391 miles from the junction with the Atchison, Topeka & Santa Fe at Isleta, N. M., and 401 miles from Albuquerque. About 150 miles remain to reach the Colorado River.

The Central Division is now completed to Tulsa, Ind. Ter., 33 miles beyond Claremore, and 67 miles west by south from the old terminus at Vinita. This division is operated by the St. Louis & San Francisco Company.

Baltimore & Ohio.—At the monthly meeting of the board in Baltimore, Oct. 11, the Committee of Finance submitted their report of the earnings and expenses of the road for the fiscal half year ended Sept. 30, and upon their recommendation cash dividends of 5 per cent., payable on Nov. 1, were declared on the stock of the Main Stem and Washington Branch. President Garrett presented a statement of the earnings of the main line and branches for September, which showed a total of $1,759,291, as against $1,642,634 for the like month of the preceding year. Mr. Garrett stated that the result for the fiscal half-year closed Sept. 30 will show, after payment of 5 per cent. cash dividends upon the common stock, more than $600,000 to be added to the surplus fund, which is not represented by stock or bonds, and which fund, on Sept. 30, 1881, amounted to $42,258,680.61. The sum beyond the cash dividend paid is being invested in the construction of new and additional lines and other improvements.

Bangor & Katahdin Iron Works.—This road is now completed to the Katahdin Iron Works, three miles northward from the late terminus at Foster Brook, Me., and 19¼ miles from the junction with the Bangor & Piscataquis road at Milo. The road is already developing a considerable business in lumber.

Bath & Hammondsport.—Mr. Allen Wood, of Hammondsport, N. Y., lessee of this road, desires to be relieved from active business on account of ill health, and therefore offers for sale the lease of the road for 99 years. The road is well equipped and in good condition. Its connections are good and the business is steadily increasing. Further information may be had from the lessee. The road is 9¼ miles long.

Boston & Maine and the Eastern.—The Boston *Herald* says: "The fact is that the two companies are no nearer an agreement to-day than they were when the first suggestion was made by the Boston & Maine that it would like to lease the Eastern. In fact, the lease is not so probable to-day as it was then, for it is reported that the Eastern management has admitted that it has little desire to be leased. All negotiations looking to a lease have stopped, for the present at least, and the committees from the two roads are simply considering the matter of arranging another pool. The old pool still continues by mutual agreement, and will last until a new one takes its place."

Another Boston report, however, says that negotiations for the lease will be renewed, with some prospect of an agreement.

Buffalo, Pittsburgh & Western.—This company is now running its freight trains through to Buffalo over the new extension, and begins this week to run a single daily passenger train. Additional passenger trains will not be put on for a week or two yet.

Cairo & St. Louis.—The special master, to whom were referred the intervening claims in the foreclosure suit, has made his report to the United States Circuit Court. These claims are chiefly for labor and supplies furnished before the appointment of the Receiver, and the bondholders have interposed objections to their payment from the proceeds of the sale of the road. The Court has not yet passed upon the report.

Chicago & Hannibal.—This company has filed articles of incorporation to build a railroad from Chicago to Hannibal, Mo., on the most direct line. The incorporators are not connected with any other company.

Chicago & Northwestern.—The Redfield Branch of the Central Dakota line is now completed to a junction with the James River Branch at Redfield, Dak., 43 miles west of Ciark Centre, the late terminus, and 74 miles from Watertown.

Chicago, Milwaukee & St. Paul.—On the Hastings & Dakota Division track is now laid for 32 miles westward from Millbank, Dak. Trains run to Wilmot, 16 miles from Millbank.

The Okoboji Branch is completed from the Iowa & Dakota Division at Spencer, Ia., northward to the Okoboji Lakes, 17 miles. Trains are running over this branch.

On the southern end of the James River line track has been laid from Mitchell, Dak., north to Letcher, 15 miles.

Cincinnati & Eastern.—Work has been begun on the eastern end of this road in Portsmouth, O., and the grading into that town is nearly finished.

A company, under the name of the Cincinnati, Portsmouth & Gallipolis, has been organized to extend this road from Portsmouth east through the coal fields to Gallipolis.

Denver & Rio Grande.—The Blue River branch has been extended from the former terminus at Wheeler, Col., to Frisco, a distance of 7½ miles.

The Utah extension is now completed to Delta, Col., 23 miles west of Montrose and 84 miles from Gunnison. Delta is at the junction of the Gunnison and Uncompahgre rivers, and is 87 miles from the Utah border.

Denver & Rio Grande Western.—Track on this road is now laid for 51 miles eastward from Pleasant Valley, Utah, the end of the track being 156 miles from Salt Lake. Work is progressing rapidly towards the Colorado line, where connection will be made with the Denver & Rio Grande.

East Tennessee, Virginia & Georgia.—Track is now all laid on the cross branch from Ooltewah, Tenn., to Red Clay, 11½ miles. This branch has been built to give the new line to Atlanta and Brunswick a direct connection with Chattanooga.

Tracklaying on the company's Cincinnati & Georgia line was completed last week by filling the gap between Dallas, Ga., and Hill's Creek, 6½ miles. Through trains began to run over the new line from Chattanooga to Atlanta, Macon, and Brunswick, Oct. 9.

The new line extends from Rome, Ga., through Atlanta to

Macon, 161 miles, completing this company's connection with its Macon & Brunswick road, and forming a line of 347 miles from Rome to Brunswick. From Chattanooga to Atlanta the company's line now competes directly with the Western & Atlantic, and from Atlanta to Macon with the Central, of Georgia.

From Oct. 9 the Georgia Division extends from Macon to Ooltewah Junction and Cleveland, Tenn., and the northern end of the Alabama Division is at Rome instead of Cleveland.

Fitchburg.—The new piece of track which this company has been building during the summer between Baldwin, Mass., and Royalston is nearly completed. On and after Oct. 25 the use of the old line will be discontinued, and trains will run over the new line, using at first one track. The second track will be ready for use the first of next month. The new line is about five miles long. Its construction avoids four bridges, does away with five grade crossings, reduces the grade from 40 to about 20 ft. in favor of east-bound business, and saves a third of a mile in distance.

Ft. Worth & Denver City.—The following statement is made of the operations of this new road for the four months ending Aug. 31:

Earnings	$82,497
Expenses (24.9 per cent.)	20,504
Net earnings	$61.993
Interest on bonds	24,000
Surplus	$37,993

The average mileage worked was 60 miles. It is not to be expected that the road can be worked any length of time for one-quarter of the gross earnings.

Galveston, Harrisburg & San Antonio.—The tracklayers working westward have reached the Pecos River, 215 miles westward from San Antonio, Tex. There is now a gap of about 14 miles only between this end of the track and the rails laid from El Paso eastward.

Georgia Pacific.—The Columbus (Miss.) *Dispatch* says: "From Atlanta to Anniston, a distance of 105 miles, the track has been laid with steel rails over 60 miles, and is being laid westward toward Anniston on the remaining distance at the rate of over half a mile a day. Tracklaying eastward from Anniston began last Monday, Oct. 2, and the gap between the latter place and Atlanta will be closed and trains running in November. From Birmingham to Anniston the work has all been let to contract, the contractors are on the ground with heavy forces, and the work is to be completed by August, 1883. This section embraces the heaviest work on the road from Atlanta to Columbus. Between Atlanta and Anniston, there is one tunnel a little over 500 ft. long, which has just about been completed, and between Anniston and Birmingham is one tunnel of 700 ft. upon which work has just commenced. From Birmingham westward to the western boundary line of Walker County, the line has not been located, and surveys are still being made with reference to the best route and the tapping of the marvelously rich coal deposits of that region. It is almost certain the whole line from Atlanta to Birmingham and from Columbus eastward to the Walker County line will be completed by Aug. 1, 1883. This will leave a gap of only about 60 miles, and manifestly it will be to the interest of the railway to fill this gap as speedily as possible; and it is the hope and purpose of the company to complete this 60 miles by January, 1884. We may, therefore, reasonably expect trains to be running from Columbus to Atlanta within 18 months.

"As our readers know, a section of 20 miles eastward on the Columbus Division is completed, and 20 miles of better new road it would be hard to find. Eastward from the terminous of the completed road to the western boundary of Walker County, a distance of about 45 miles, the road is let to contract for early completion, the first section of 20 miles to be completed by Jan. 1, 1883. Messrs. Leake & Dunn Bros., contractors, are pushing the grading and trestling through the Luxapalila swamp, and the track will be laid across this swamp and to a distance of five miles from the present terminus by November next. The remainder of the line to the border of Walker County is comparatively easy work, that will not be seriously hindered by the winter rains. Messrs. Hudson and Cocke, representing Norvell, Leak & Co., cross-tie contractors, have on hand about 20,000 cross-ties, and will commence distributing them along the line very soon. They have also let out contracts for about 60,000 more, and have still more to let out, running up into hundreds of thousands. Depots will be erected on the completed section, as the sites have been selected. The Columbus Division is in charge of Division Engineer Wm. A. Hankins, with Captain W. J. Parrish in charge of the train, and Mr. C. R. Simons in the office in this city."

Gettysburg & Harrisburg.—This company has been organized to build a road from Hunter's Run, Pa., on the South Mountain road, southward to Gettysburg, about 22 miles. In connection with the South Mountain and Cumberland Valley roads it will make a pretty direct line between Gettysburg and Harrisburg. The capital stock will be $250,000, and the incorporators are Jay Cooke, J. C. Fuller, John M. Butler, Jay Cooke, Jr., R. J. Woodward, Charles D. Barney, Spencer Ervin, Philadelphia; William H. Woodward, Carlisle, Pa., and Daniel King, Pine Grove Furnace, Pa.

Hannibal & St. Joseph.—In obedience to an order of the United States Circuit Court, this company has paid over $90,000, being a half-year's interest on the $3,000,000 Missouri state bonds. The road will accordingly not be offered for sale, as advertised by the Governor of the state. The payment is made without prejudice, and is to be considered in any accounting with the state whenever the Court may decide the controversy between them.

Illinois Central.—The Chicago *Tribune* says: "The Illinois Central Company has at last overcome all obstacles in the way of the construction of a suburban line to South Chicago. Work on the new line was commenced yesterday, and will be pushed to completion as rapidly as possible. All the material for the new line being on hand, the road will be completed within a short time and trains will run over it before Jan. 1. The line leaves the main track of the Illinois Central at a point just north of the Baltimore & Ohio junction, whence it will bend off to Seventy-first street and run due east on that street to Railroad avenue, then down Railroad avenue to the village of South Chicago. The old grade of the South Chicago & Indiana Railroad built in the centre of Seventy-first street will not be used. A branch line will be built to Cheltenham Beach, where the South Shore Improvement Company is constructing a large hotel and summer resort. The new road will no doubt prove of great value to the property-owners along the south shore between Hyde Park and South Chicago, and will help to fill up that section rapidly with fine residences, as a large number of suburban trains will be run over the new line as soon as it is completed, and thus make that section much more easy of access than it has been thus far."

The company's statement for September shows earnings for that month as follows:

	1882.	1881.	Inc. or Dec.	P. c.
In Illinois	$643,494	$646,411	D. $2 917	0.4
In Iowa	184,744	182,437	I. 2,307	1.2
Total	$828,238	$828,848	D. $610	0.1

During September, 1882, the land sales were 3,828.97 acres, for $17,447.20, and the cash collected on land contracts was $16,706.43.

Indianapolis Union.—This company has completed the lease of the Belt road around Indianapolis, and has also leased the use of a section of the Indinnapolis & Vincennes track, which will save the building of some new track in making the connection between the Union and the Belt tracks. The lease of the Belt road is for 999 years.

Iowa & Dakota.—It is proposed to build a railroad from Marcus, Cherokee County, Ia., on the Illinois Central Railroad, via Orange City, Rock Valley and Sioux Falls, to Bismarck, Dak. The projectors hope to secure aid from the Illinois Central Company.

Lake Shore & Michigan Southern.—From Oct. 1 the Ft. Wayne & Jackson road, 100 miles, is added to this company's lines under the lease lately made. It will be known as the Ft. Wayne Branch.

Leavenworth, Topeka & Southwestern.—Track is now laid to a point 42 miles west by south from Leavenworth, Kan. About five miles more will bring the road to the junction with the Atchison, Topeka & Santa Fe at Meriden, where it will probably end, as it is not likely that a separate track will be built to Topeka.

Louisville & Nashville.—At the annual meeting in Louisville, Oct. 4, the following resolutions were submitted:

"*Whereas*, Such capital stock is now $21,213,513, including $3,080,000 of stock originally subscribed for by the city of Louisville under Ordinance 265 of said city, approved Nov. 13, 1855, with the dividends thereon; and

"*Whereas*, It is believed to be for the interest of the stockholders that the capital stock of the company be increased to $30,000,000, such sum being below the cost of the road and branches of the company.

"*Resolved*, That the capital stock of the Louisville & Nashville Railroad Company be and the same is hereby increased from the sum of $21,213,513, as now existing, to the sum of $30,000,000, and that the President and directors be authorized and directed to take steps to issue such additional stock, and to issue certificates for fractional shares of the same; and that the President and directors be further authorized, in their discretion and from time to time, to dispose of such increase upon such terms and in such manner as they may deem best for the interests of the company, *such increased stock not to be voted upon until disposed of, and no disposition to be made at less than the market price at the time of such disposition.*"

The words in italics were not appended to the original resolution. After the reading of the resolution, some discussion was had as to the propriety of fixing any price on the new stock, but the wishes of parties were met by the adoption of the amendment, embodied in the lines in italics. The resolution was adopted by a vote of 108,559 yeas to 9,432 nays.

A second resolution, adopted without objection, was as follows:

"*Resolved*, That the contract entered into between the Louisville & Nashville Railroad Company and the Nashville & Florence Railroad Company, under which the Louisville & Nashville Company is to acquire $105,000 of the capital stock of the Nashville & Florence Railroad Company, and which contract has been heretofore approved by the Executive Board of this company, is hereby assented to and approved by the stockholders of this company, and the President and directors are authorized to carry it out."

A branch has been completed from the Evansville, Henderson & Nashville Division at Madisonville, Ky., west to Providence, 16 miles. It will be opened for business in a few days.

Massachusetts Central.—The Boston *Advertiser* says: "The directors of the Massachusetts Central Railroad expect to have their statement to the bondholders finished in the course of two weeks. The condition of affairs has, it is said, been found to be very much worse than at first supposed. The line between Boston and Jefferson, which was turned over by the contractor to the company as fully completed, needs five new bridges and other improvements which will cost in the aggregate fully $100,000. Excessive land damages, legal controversies and other causes will, in all probability, still farther swell this sum. The directors have already advanced $15,000 to keep the road in operation, and are not inclined to do any more. It is now evident that the crisis in the company's affairs is near at hand, and that it must very soon be determined whether the road shall go under the sheriff's hammer, or be continued under the present management, with ample funds to complete it and place it on a paying basis."

Meadow Valley.—This company has been organized to build a railroad from Tayon, Ark., southward to the Arkansas River at the Post of Arkansas. The distance is about 75 miles.

Mexican Railway.—For the three half-years ending with December, the earnings of this road (293 miles) were:

	Last half 1881.	First half 1881.	Last half 1880.
Passengers	£54,323	£54,859	£46,462
Merchandise	367,344	395,911	279,586
Pulque	37,524	37,597	38,229
Sundries	20,130	19,330	17,866
Total	£479,321	£507,699	£382,144

There was thus an increase of £97,177 (25¼ per cent.) in the total earnings in the last of 1881, compared with the corresponding period of 1880; in passenger earnings the increase was 17 per cent., in freight 31¼ per cent. In pulque there was a slight decrease.

Compared with the first half of the year the earnings in the last half of 1881 show a decrease of £28,378 (5.9 per cent.) which was nearly all in freight. The working expenses were just about £180,000 in both halves of 1881.

Monson.—Surveys are being made for a narrow-gauge line about four miles long, from the slate quarries in Monson, Me., to a point on the Bangor & Piscataquis road.

New York Central & Hudson River.—The new elevated tracks through the city of Rochester are so far completed that trains began to run over them Oct. 8, and the old passenger station and tracks were then abandoned by regular trains, although the construction trains will use the old track for a short time. There is still much work to be done on the elevated tracks, and they will not probably be entirely finished before the end of the year. The new passenger station will be ready about the same time, the present arrangements for passengers being only temporary.

The Coroner's investigation of the accident in the Fourth Avenue tunnel was concluded Oct. 5, when the jury brought in the following verdict:

"We find that Maria Aubert, William Howe and Elizabeth A. Crommelin died in consequence of a collision at or near the Eighty-sixth street station in the tunnel or side cut of the New York & Harlem Railroad, otherwise known as the rapid transit road, said collision being caused by a train of the New York & Harlem Railroad Company running into a train of the New York, New Haven & Hartford Railroad Company on said track.

"We find that to the failure of W. D. C. Rawson, the telegraph operator at the Ninety-sixth street station, to signal the approaching New York & Harlem train, is attributable the possibility of such an accident, and we find the said W. D. C. Rawson guilty of culpable negligence.

"We find that George E. Rood, the conductor of the New York, New Haven & Hartford train, in conducting his train with an insufficient number of brakeman and without the necessary equipment for signal service, and in accepting an unqualified person of immature age and indadequate experience as a substitute for a regular brakeman, and in other and material respects being regardless of the safety of the passengers whose lives were in his keeping, was guilty of gross and criminal negligence.

"We consider that Robert L. Robbins, in assuming the duties of a brakeman and not following the rules governing the running of trains in immediately proceeding to the rear when his train stops to notify approaching trains, is guilty of culpable negligence.

"We find that the New York Central and Hudson River Railroad Company is guilty of gross and criminal negligence in failing to provide in said tunnel sufficient appliances for the signaling of trains, and in failing to provide a sufficient number of employés to carry out such precautions as the rules require to be taken in such emergencies, and is therefore responsible for the deaths aforesaid.

"We further find the New York, New Haven & Hartford Railroad Company is guilty of gross and criminal negligence, and reprehensible for dereliction of duty in failing to employ on the trains of said company a sufficient number of brakemen charged with and instructed in the duty of leaving their trains when delayed and going along the track a suitable distance to apprise approaching trains of danger; that their failure so to provide a sufficient number of brakemen on the wrecked train was the cause of the death of the said Maria Aubert, Elizabeth A. Crommelin and William Howe, and that they are responsible therefor as aforesaid.

"We would urge upon the Legislature the enactment of laws providing for greater safety in railroad travel, and we recommend that the Common Council assist, as far as they can, in speedily procuring such legislation. We cannot refrain from condemning, in the management of these roads, a mistaken economy which, devoted to the securing of large dividends, ignores and dispenses with the simplest agencies required for the safety of its passengers.

"The jury also are of the opinion that any engineer who leaves his engine, especially in the time of emergency or of a crisis, as did Abraham Close, engineer of the New York, New Haven & Hartford Railroad Company, does not seem to be governed by a proper sense of his responsibilities under the circumstances, and deserves the severest censure.

"We find that the omission of the block system from the rapid-transit tracks, where, in our opinion, it is most necessary, is a defect.

"We find no means adopted for lighting the tunnels in what is known as the rapid-transit tracks, which, in our judgment, is essential to the security of travel. We recommend a perfect system of lighting the place therein.

"We recommend that the arrangement on the surface of the roadbeds in the tunnels be placed in a condition to make them safe for passage.

"We find, on personal examination, that the ventilation of the rapid-transit tunnels is deficient, and recommend that openings be made more frequent to the main track, and that those that are now made be enlarged as much as possible."

New York, Lake Erie & Western Coal & Railroad Co.—The track having been laid, this road is now nearly completed; only a few miles of surfacing remains to be done before the road can be opened. About five miles of rails were laid from the north end, where the road joins the Buffalo, Bradford & Pittsburgh Branch of the Erie, at a point near Alton, Pa., to the Kinzua Viaduct. The remaining 25 miles were laid from the south end, beginning at Johnsonburg, the point of intersection with the Philadelphia & Erie, and the last rail joining these two pieces was put down on Saturday, Sept. 30, at the south end of the Kinzua Viaduct, thus completing the track over the whole of the road. Although the viaduct had been finished several days, no train had yet passed over it. As soon as the last rail was firmly secured in proper position, the construction train, having on board the President, General Thomas L. Kane, accompanied by Mrs. Kane, was immediately sent across the structure by Mr. Charles Pugsley, Engineer in charge of construction, who was present with his assistants, Messrs. Keefer and Rapelje. The train crossed the viaduct slowly, and, having reached the other side in safety, it was at once followed by the Superintendent of the Middle Division of the Philadelphia & Erie, Mr. E. B. Westfall, who took his engine and party across. These were the first heavy loads put on the structure; it stood firm as a rock, no vibration being apparent except in the tension rods in the upper parts of the towers. Every one pronounced the structure a grand success, and approved the idea of crossing a mountain gorge on iron-work 300 ft. high, in order to save heavy grades and expensive graduation. The road will be opened for regular business about Nov. 1.

The north end is 90 miles from Buffalo, the route being over lines owned by the Erie, by way of Bradford, Carrollton and Dayton.

The stations on the new road, and distances from the junction near Alton are as follows: Kinzua Viaduct, 4.50; Mount Jewett, 9.06; Midmont, 18.37; Rasselas, 19.98; Johnsonburg (junction with P. & E. R. R.), 29.92 miles. A coal branch two miles in length is being rapidly constructed from Rasselas Station to the coal mines on the Roberts tract. These mines are yielding an abundant supply of bituminous coal of excellent quality, and are situated only about 110 miles from Buffalo. As the grades on the road are very easy this company will be able to deliver coal to the Buffalo market at a very low figure. The extension of the road from Johnsonburg southward has been undertaken by the Pennsylvania Railroad Company.

New York & Long Branch.—At the opening of the Monmouth County, N. J., Court last week, the Court in its charge to the Grand Jury recommended an investigation of the accident at Little Silver last June. The Grand Jury has since brought in an indictment for manslaughter against Kier, the track foreman who is charged with having left the track insufficiently spiked. It is said that other indictments will also be found.

New York & New England.—The following circular has been issued by General Manager Felton:

"Hereafter Transportation Rule 12 will read as follows. Engineers, firemen, conductors and brakemen will see that it is carefully observed in every particular:

"The speed of passenger trains must not exceed 50 miles per hour, or one mile in one minute and 12 seconds, *under any circumstances*, and this speed must be reduced on descending grades where there are sharp curves to 40 miles per hour, or one mile in one minute and 30 seconds.

"The speed of freight trains must not exceed 25 miles per hour, or one mile in two minutes and 24 seconds with mogul or eight-wheel engines, or 20 miles per hour or one mile in three minutes with consolidation engines, except such trains as are allowed to exceed this rate by special rule on time card, or by special order from the Superintendent, which order will only be good on the day given and for the train named. It is not intended by this rule that trains shall be permitted to average the rate of speed given between stations, but they shall not exceed it on any mile of the road, be it up or down grade."

The company has called for bids for construction of a second track from Burnside, Conn., to Vernon, and from North Windham to Putnam; work to be begun as soon as the contracts are awarded.

New York, Susquehanna & Western.—This company began this week to run through passenger trains over the new extension from Two Bridges, N. J., on the old main line to Middletown, to Gravel Place, Pa., where connection is made with the Delaware, Lackawanna & Western road. The distance from Two Bridges to Gravel Place is 50 miles, of which 29 miles, from Two Bridges to Blairstown, and 14 miles, from Warrington to Gravel Place, are new road. The section of seven miles, from Blairstown to Warrington, is part of the old Blairstown road, which this company bought; the five miles of the Blairstown road from Warrington to Delaware are worked as a branch. Coal trains will be put on in a few weeks.

The heavy grades and single track of this road will not favor its coal traffic: but the extension opens a new and very attractive route from New York to the Delaware Water Gap. It also opens a very beautiful section of the hill country of New Jersey, which will probably give the road a considerable milk traffic and other local business, besides attracting some passenger travel in summer.

Ohio & Mississippi.—Receiver Douglas reports to the Court for September as follows:

Cash on hand, Sept. 1		$49,788
Receipts from all sources		577,472
Total		$627,260
Vouchers previous to Nov. 18, 1876	$23,739	
Vouchers, etc., subsequent to Nov. 18, 1876	357,700	
		381,439
Cash on hand, Oct. 2		$245,821

The receipts exceeded the disbursements by $196,033 for the month.

Ontonagon, Agogebic & Wisconsin.—This company has been organized to build a railroad from Ontonagon, Mich., south by west to Lake Agogebic and thence to a connection with the Wisconsin Central road.

Ottumwa & Kirkville.—This road has been completed and opened for business from Ottumwa, Ia., northwest to Kirkville, 12 miles. It is controlled by the Chicago, Burlington & Quincy.

Palisades.—Arrangements are being made to begin work on this road, which is to run from Weehawken, N. J., northward along the Palisades on the west bank of the Hudson, to the New York state line, a distance of 16½ miles. An extension from Weehawken to Hoboken, 3½ miles, is also proposed.

Pemigewasset Valley.—Track has been laid from the junction with the Boston, Concord & Montreal at Plymouth, N. H., north to Mad River in Campton, about five miles. As soon as the Mad River bridge is up another advance will be made.

Pennsylvania.—The Vance's Mill Branch has been completed from a junction with the Redstone Branch to Vance's Mill., Pa., 2.41 miles. It serves a coke district.

The Sugar Camp Branch has been completed from a junction with the Tyrone Division to the Sugar Camp coal mine, a distance of 3.8 miles.

Pittsburgh & Western.—The Parker Division (formerly the Parker, Karns City & Butler road) has been extended from Butler, Pa., southwest to Baldridge, seven miles, and trains are running.

Rew City & Eldred.—This road has been completed from Eldred, Pa., southward to Rew City, 12 miles, through a new oil district. It is an extension of the Bradford, Eldred & Cuba road.

Rochester & Pittsburgh.—At a meeting held in New York, Oct. 5, the stockholders voted to authorize the issue of $10,000,000 additional stock. Of this issue $5,000,000 are to be used to take up $3,200,000 income bonds of the Buffalo & Pittsburgh Division, and purchase the capital stock of the Brockwayville & Punxsutawney Railroad and of the Perry Railroad. Of the balance $4,000,000 will be used in the purchase of the capital stock of the Rochester & Pittsburgh Coal & Iron Company, having a cash capital of $300,000 and no floating debt, and owning 7,000 acres of coal land. The $1,000,000 remaining will be expended in the purchase of terminal facilities in Buffalo. The President reported that 8,000 men and 480 teams are now employed on the road and that a *pro rata* contract had been made with the Pennsylvania Railroad Company on Pittsburgh business.

The Buffalo *Express* says: "Work on the line goes forward with great activity. There are now at work between Buffalo and Ashford Station about 450 teams and 2,000 men. The main line of the road is now in operation to a point six miles below Bradford, the permanent bridge over the Tuna Creek being used for the first time Thursday night. For the present the company will use the Erie from Bradford to Johnsonburg, 37 miles, crossing the Kinzua by the latter's famous viaduct. From Johnsonburg to Ridgway the road is all graded and ready for the iron. From Ridgway to the Beech Tree mines, Jefferson County, the road will be ready for the track in two weeks. The 33 miles from the mines to DuBois is being rapidly graded, and the line is located to Punxsutawney, 182 miles from Buffalo. Tracklaying on the Buffalo Division, from Ashford Station north, will begin within a week. The iron will be laid to a point about seven miles north of Ashford, in order that the stone for the bridge over the Cattaraugus may be shipped that way. It had been proposed to use stone from the Springville quarries, but its quality was unsatisfactory. The stone now obtained is a fine sandstone, quarried near Bradford. It is shipped to Springville via Machias, thence over the Philadelphia road to Sardinia Junction, thence by the Springville & Sardinia narrow-gauge to Springville, from where it is hauled 2½ miles to the Creek. The piers for the bridge require about 2,400 yards of stone. The bridge will be built from the south side, and shipment of material will be much easier by the company's own line direct from Ashford, even if teams have to be used for several miles. The grade from Ashford to Buffalo is about four-fifths done. By the contract it must be finished by Nov. 15. The contract for rail-laying on this section is not yet let. The company will lay the strip between Ashford and the Creek itself. A very important change has lately been made in the company's plans in regard to entering Buffalo. It was at first intended to connect with the Nickel Plate, seven miles out, but the road will now build its own track into the city."

Savannah, Florida & Western.—The branch or extension from Climax, Ga., eight miles east of Bainbridge, southwest to Chattahoochee, Fla., 31 miles, is now nearly all graded, and track-laying has been begun.

On the Florida Extension track is now laid to Rowland's Bluff on the Suwannee River, 24 miles southward from the old terminus at Live Oak. A further extension is to be built.

Sinaloa & Durango.—This Mexican road is now completed from Altata, on the Gulf of California, to Culiacan, a distance of 62 kilometres.

For the quarter ending Sept. 30 earnings of the short section of the road in operation equaled its expenses. This is a better result than was expected.

Sioux City & Pacific.—The Nebraska Division has been completed to Valentine, Nebraska, 56 miles west by north from Long Pine, and 295 miles from the Missouri River. Tracklaying to this point has been for several weeks waiting the completion of a long and deep cutting. Valentine is to be the Winter terminus.

Tehuantepec Interocean.—The bondholders met in New York last week and appointed a committee of seven to negotiate with the Mexican government in their behalf. They also protested against the action of the government in declaring the concession forfeited.

Texas & Pacific.—The following statement is made for this road for the quarter ending Sept. 30:

Earnings	$1,499,330
Expenses	899,400
Net earnings	$599,930
Fixed charges	492,720
Surplus	$107,210

Fixed charges include interest on New Orleans Pacific bonds, although that road was not fully opened for traffic until Sept. 15.

Texas & St. Louis.—At a meeting held in St. Louis, Oct. 11, the stockholders voted to increase the capital stock of the Missouri & Arkansas Division of the road from $4,850,000 to $15,000,000.

Toledo, Cincinnati & St. Louis.—The gap of 30 miles from Stewardson, Ill., west by south to Ramsay, was closed this week, the parties working from the ends meeting at Beck's Creek. The tracklayers from Ramsay west have reached East Shoal Creek, 25 miles from Ramsay, and 10 miles beyond the point last noted.

Troy & Greenfield.—The Boston *Advertiser* says: "The number of loaded freight cars passing eastward through the Hoosac Tunnel for September was 5,230, an increase of 162 over the same month of 1881. For the twelve months ending September 30 the total was 60,000, against 64,000 for the previous twelve months. Taking into account the decreased movement caused by the short crop of the previous year, the decrease upon the year's movement was not as large as might have been expected."

Union Pacific.—The Grand Island & St. Paul Branch has been extended from St. Paul, Neb., northwest to North Loup, 27 miles, making the branch 49 miles long from Grand Island.

Work has been begun on a branch of the Oregon Short Line from the Little Wood River crossing northward to Hailey, Montana, about 60 miles.

The following statement has been published for August and the eight months ending Aug. 31:

	August.	Eight months.
Gross earnings	$2,827,904	$18,802,441
Expenses	1,220,495	10,220,381
Surplus	$1,607,409	$8,582,060

As compared with the same period last year, the surplus for the eight months shows an increase of $652,861, or 7.5 per cent.

Utah & Northern.—Track on this road is laid to Deer Lodge, Montana, 30 miles northward from Silver Bow Junction, and 439 miles from Ogden, Utah. Regular trains will soon run to the new terminus.

Warren & Farnsworth Valley.—Work is being pushed rapidly on the extension from Garfield, Pa., to Falltown.

ANNUAL REPORTS.

The following is an index to the annual reports of railroad companies which have been reviewed in previous numbers of the present volume of the *Railroad Gazette:*

Columbia & Greenville.

This company owns a line from Columbia, S. C., to Greenville, 143 miles, with branches to Abbeville, 11½ miles, and to Anderson, 9½ miles; it also operates the Blue Ridge road from Anderson to Walhalla, 32 miles, making 196 miles in all.

The company also leases the Laurens road, 31 miles, and the Spartanburg, Union & Columbia, 68 miles, but their earnings are given separately. The following figures are from the report to the Railroad Commissioner of South Carolina for the year ending June 30, 1882.

The capital account is as follows:

Common stock	$1,000,000
Preferred stock	1,000,000
Funded debt	3,000,000
Accounts and balances	323,280
Total	$5,323,280
Cost of property	5,045,688

The funded debt consists of $2,000,000 first-mortgage bonds and $1,000,000 second-mortgage bonds, all bearing 6 per cent. interest.

The earnings for the year were as follows:

Passenger department	$139,997
Freight department	459,874
Miscellaneous	8,723
Total ($3,105 per mile)	$608,594
Expenses (71.4 per cent.)	434,604
Net earnings ($916 per mile)	$173,990

Expenses include the taxes paid for the year.

The result of the year appears as follows:

Net earnings	$173,990.48
Interest on bonds	180,000.00
Deficit for the year	$6,009.52

The earnings of the leased lines for the year were as follows:

	Laurens.	Sp., U. & Col.
Earnings	$33,108	$100,106
Expenses	33,049	81,801
Net earnings	$59	$18,305
Gross earnings per mile	1,068	1,472
Net " " "	2	269
Per cent. of expenses	99.9	81.7

The Laurens road is owned by the Columbia & Greenville Company; the Spartanburg, Union & Columbia is leased for $50,000 a year, showing a loss of $31,695 on the lease.

Louisville & Nashville.

The annual report of President Baldwin (the only part of the report yet published) for the year ending June 30, 1882, opens with the following statement of mileage:

"The last annual report stated the aggregate length of the roads operated by this company June 30, 1881, at 1,872 miles. In the month of July, 1881, the company purchased the entire capital stock of the Louisville, Cincinnati & Lexington Railway Company, and on Nov. 1, 1881, took a conveyance of its railway and other property, with its leased roads (in all 237 miles), into the Louisville & Nashville system. The Owensboro & Nashville road (35 miles), which this company had previously operated as a part of its system, was, on July 1, 1881, turned over to the Owensboro & Nashville Railway Company, in which company the Louisville & Nashville Railroad Company owns a large majority of the capital stock, and it is now operated by that company. On Jan. 1, 1882, the Cecilian Branch (from Louisville south 46 miles) was turned over to the Chesapeake, Ohio & Southwestern Railway Company, under a lease of 99 years, at an annual rental of $60,000, with the privilege to that company of purchasing at $1,000,000.

"The length of the roads operated by this company June 30, 1882, is as follows:

"First—Owned in fee or through the ownership of the entire capital stock"

	Miles.
L. & N., Main Stem	185.23
Bardstown Branch	17.30
Lebanon-Knoxville Branch	110.30
Richmond Branch	33.80
Memphis Division	250.10
Henderson Division	135.22
Pensacola Division	45.00
Pensacola & Selma Division	72.00
Louisville, Cincinnati & Lexington	175.00
Louisville, Harrod's Creek & Westport	11.00
Southeast & St. Louis	108.00
Mobile & Montgomery	168.00
New Orleans & Mobile	141.00
Ponchartrain Railroad	5.00
Total owned	1,577.95

"Second—Operated under lease:

Nashville & Decatur	119.09
Southern Division Cumberland & Ohio	30.58
Northern Division Cumberland & Ohio	28.00
Shelbyville Branch	19.00
Louisville Railroad Transfer Co	4.00
Glasgow Branch	10.50
Selma Division Western Railroad, of Alabama	50.00
	261 17

"Third—Operated for the South & North Alabama Railroad, being the owners of a majority of the capital stock:

South & North Alabama	188.88
Total	2,028.00

"Fourth—Lines in which the Louisville & Nashville Railroad Company is interested as owner of a majority of the capital stock of the company operating the same, outside of its own system:

	Miles.
Nashville, Chattanooga & St. Louis	521
Owensboro & Nashville	43
Total	564

"Fifth—Lines in which the Louisville & Nashville Rail-

road Company is interested as joint lessee with the Central Railroad Company of Georgia: Georgia Railroad and dependencies, 641 miles."

STOCK AND DEBT.

Concerning changes in the stock and debt the report says:

"The capital stock of the company was, on June 30, 1881, $18,130,913.17, and on June 30, 1882, $18,133,513.17, the increase of $2,600 resulting from the exchange for stock in the Memphis & Ohio Railway Company under the articles of consolidation with that company, and the stock is still liable to a further small increase from that source, inasmuch as the whole of the stock of the Memphis & Ohio Railway Company has not been presented for exchange.

"This does not include $3,080,000, the original stock subscribed for by the city of Louisville, under ordinance No. 265 of said city, approved Nov. 13, 1855.

"The mortgage debt of the company is as follows:

Reported June 30, 1881		$46,991,840
Trust bonds, issue of March 1, 1882		10,000,000
L., C. & L. first-mortgage bonds, assumed		2,900,000
L., C. & L. second-mortgage bonds, assumed		892,000
L., C. & L. general mortgage bonds		3,208,000
New Orleans & Mobile Division second-mortgage bonds		1,000,000
Total		$64,991,840
Redeemed mortgage main office	$10,000	
Redeemed Memphis, Clarksville & Louisville bonds	32,010	
Redeemed New Orleans, Mobile & Texas Company, debentures	3,000,000	
Pledged with Trustees as security in part of the trust-bond issue of March 1, 1882:		
Lebanon-Knoxville Branch bonds	1,500,000	
Pensacola & Selma Division bonds	1,248,000	
Louisville, Cincinnati & Lexington bonds	3,208,000	
		8,988,010
Total		$55,993,830
Car-trust liens, Louisville & Nashville		2,000,000
Car-trust liens, Louisville, Cincinnati & Lexington		123.948
Total		$58,117,778

"The Louisville, Cincinnati & Lexington bonds included in above statement were assumed by this company in consequence of its ownership of the entire capital stock and property of that company.

"The $3,000,000 debentures of the New Orleans, Mobile & Texas Company, as reorganized, outstanding June 30, 1881, as per last annual report, have been retired, and $1,000,000 new 6 per cent. bonds issued by the Louisville & Nashville Company in lieu thereof, secured by a second mortgage on the New Orleans & Mobile road.

"Besides the above additions to the funded debt of the company $2,000,000 car-trust certificates have been issued, bearing date April 1, 1882, and maturing from 1883 to 1889. These car-trust bonds were executed and given in payment for a large amount of rolling-stock lately purchased by the company. They run through a period of seven years, payable in equal amounts semi-annually. * * * *

"Of the bond issues reported June 30, 1881, the company had in its treasury unmarketed, as stated in the last annual report $1,500,000 Lebanon-Knoxville Branch bonds and $1,248,000 Pensacola & Selma Division bonds. On Nov. 1, 1881, it issued $7,000,000 bonds, secured by general mortgage on its Louisville, Cincinnati & Lexington Railway, of which $3,792,000 bonds were retained by the trustee under the mortgage to retire the Louisville, Cincinnati & Lexington first and second-mortgage issues, and $3,208,000 of bonds remained in the company's treasury to be marketed. Finding it impossible, in the depressed condition of the market for securities throughout the year, to market any of these bonds at satisfactory prices, the company negotiated an issue of $10,000,000 trust bonds, pledging as security therefor the following bonds and stocks, in which those above referred to will be found included, to wit:

Bonds:	
Lebanon-Knoxville Branch	$1,500,000
Pensacola & Selma Division	1,248,000
Mobile & Montgomery Division	2,677,000
Lou., Cin. & Lex	3,208,000
Pensacola & Atlantic Railroad	1,000,000
Total bonds pledged	$9,633,000
Stocks:	
Lou., Cin. & Lex., preferred	$1,500,000
" " " common	1,000,000
S. & N. Alabama, preferred	2,000,000
" " " common	185,000
Mobile & Montgomery	2,939,700
N. O., Mobile & Texas	4,000,000
Southeast & St. Louis	980,000
Pontchartrain	740,000
N., C. & St. L	3,385,000
Owensboro & Nashville	250,000
Pensacola & Atlantic	1,550,000
Total stocks pledged	$18,529,700
Total stocks and bonds pledged at their par value	28,162,700

"These trust bonds were sold at 90 cents net on the dollar. The discount of $1,000,000 has been charged, partly against the surplus account of the company and partly to those roads for whose benefit the bonds were issued."

The statement of cost, resources and liabilities, condensed, is as follows:

Stock		$18,133,513.17
Funded debt, less bonds pledged for trust loan		58,117,778.00
Louisville city bonds		850,000.00
Debentures for recent acquisitions		605,000.00
Back dividends, July interest		467,592.92
Bills, accounts and pay-rolls		1,479,787.33
Due Pensacola & Atlantic R. R.		1,205,706.82
" sundry railroads and persons		827,242.15
Profit and loss		777,500.84
Total		$82,464,121.23
Cost of road	$61,593,923.16	
Quarry and timber lands	763,637.78	
Sinking fund, L., C. & L.	50,000.00	
Co.'s bonds owned	900,000.00	
Pensacola & At. bonds	237,879.00	
Stocks and bonds owned	1,037,256.26	
Knoxville Extension	1,114,040.91	
Advances to leased and controlled lines	2,456,521.82	
Stocks and bonds held in trust, less amount included in other accounts	9,527,877.74	
Bill and accounts receivable	811,023.75	
Transportation dep't	844,725.92	
Supplies and fuel	1,418,278.55	
Car trust funds	469,638.83	
Cash balance due for trust bonds	1,054,036.73	
Cash	185,480.78	
		82,464,121.23

The bonds and stock issued are based upon 1,718 miles of road (including 94 miles under construction), making the stock $10,555 and the bonds $33,829 per mile owned.

As noted above, the stock account does not include $3,080,000 original stock subscribed for the city of Louisville.

Of the floating debt the report says: "The company has made expenditures during the year for additions and improvements to the roads and equipment, and advances to dependent companies. The bonds marketed did not provide in full for these necessary expenditures. The company has, therefore, incurred additional floating debt, and there should be no delay in improving the property and increasing its earning capacity.

As there have been of late some controversy and much interest as to the actual amount of the company's liabilities, we give from the report the following statement of the funded debt:

	Amount.	Interest.
Main office bonds, 7 per cent, due 1883	$30,000	$2,100
Second mortgage, main stem, 7 per cent., 1883	2,000,000	140,000
Lebanon Branch, 7 per cent., 1885	11,000	770
Lebanon Branch, Louisville city bonds, 6 per cent., 1886	225,000	13,500
Lebanon Branch, Louisville city bonds, 6 per cent., 1893	333,000	19,980
Louisville, Cin. & Lex., first-mortgage, 7 per cent., 1897	2,900,000	203,000
Main Stem, consolidated mortgage, 7 per cent., 1898	7,070,000	494,900
Memphis & Ohio mortgage, 7 per cent., 1901	3,500,000	245,000
Mem., Clarksville & Louisville, 6 per cent., 1902	2,171,830	130,310
Cecilian Branch, 7 per cent., 1907	1,000,000	70,000
Louis., Cin. & Lex., second mortgage, 7 per cent., 1907	892,000	62,440
Ev., Henderson & Nash. Div., 6 per cent., 1919	2,400,000	144,000
Pensacola Div., 6 per cent., 1920	600,000	36,000
St. Louis Div., 6 per cent., 1921	3,500,000	210,000
Trust bonds, 6 per cent., 1922	10,000,000	600,000
N. O. & Mobile Div., first-mortgage, 6 per cent., 1930	5,000,000	300,000
N. O. & Mobile Div., second-mortgage, 6 per cent., 1930	1,000,000	60,000
General mortgage bonds, 6 per cent., 1930	10,361,000	621,660
St. Louis Div., second-mortgage, 3 per cent., 1980	3,000,000	90,000
Car trust certificates, 6 per cent., 1883-89	2,000, 00	120,000
L., C. & L. car trusts, 7 per cent., 1882-88	123,948	8,676
Louisville city bonds, no mortgage, 6 per cent., 1886-87	850,000	51,000
Debentures on account of recent acquisitions, 6 (?) per cent	605,000	36,300
Total	$59,572,778	$3,659,636
Assumed under leases, etc.:		
Nash. & Decatur, first-mortgage, 7 per cent., 1900	1,900,000	133,000
Nash. & Decatur, second-mortgage, 6 per cent., 1887	178,000	10,680
Nash. & Decatur, stock, 6 per cent.	1,827,082	109,624
So. & No. Ala., state-endorsed bonds, 8 per cent., 1890	391,000	31,280
So. & No. Ala., sterling mortgage, 6 per cent., 1903	4,872,310	292,339
So. & No. Ala., second-mortgage, 6 per cent	2,000,000	120,000
Mobile & Montgomery, income bonds, 6 per cent	214,000	12,840
Mobile & Montgomery, old bonds, 8 per cent	41,000	3,280
Cumberland & Ohio, Southern Div., 7 per cent	300,000	21,000
Cumberland & Ohio, Northern Div., 7 per cent	250,000	17,500
Louisville, Ry. Transfer bonds, 8 per cent	291,000	23,280
Total	$12,264,392	$774,823
Endorsed:		
Pensacola & Atlantic, 6 per cent., 1921	3,000,000	180,000
Total of all	$74,8 7,170	$4,614,459
Pledged as security for trust bonds:		
Lebanon-Knoxville Branch, 6 per cent	1,500,000	
Mobile & Montgomery Div., 6 per cent., 1931	2,677,000	
Pensacola & Selma Div., 6 per cent., 1931	1,248,000	
Louisv., Cin. & Lex., general mortgage, 6 per cent., 1931	3,208.000	
Total	$8,633,000	

The pledged bonds are really duplicated by the trust bonds of 1882, so that neither the principal nor the interest is included in the total.

The Louisville, Cincinnati & Lexington general mortgage is for $7,000,000, and is intended to take in all prior liens.

The company guarantees the interest on $3,000,000 first-mortgage 6 per cent. bonds of the Pensacola & Atlantic Company.

INCOME.

For the first four months of the fiscal year the company operated 1,835 miles of road, for the next two months 2,074 miles, and for the last six months 2,028 miles, making the average operated for the year 1,971 miles. For the previous year the average was 1,840 miles.

The earnings for the year were as follows:

	1881.	1882.	Inc. or Dec.	P. c.
Freight	$8,050,339	$7,407,403	I. $642,936	8.7
Passengers	3,007,465	2,599,353	I. 408.112	15.7
Mail and express	527,024	449,072	I. 77,952	17.4
Miscellaneous	402,917	455,822	D. 52,905	11.6
Total	$11,987.745	$10,911,650	I. $1,076,095	9.9
Expenses	7,429,371	6,713,132	I. 716,239	10.7
Net earnings	$4,558,374	$4,198,518	I. 359,856	8.6
Gross earn. p. m.	6,932	5,930	I. 152	2.6
Net " "	2,313	2,282	I. 31	1.4
Per cent. expen.	61.97	61.52	I. 0.45	....

The result of the year as shown by the income account was as follows:

Net earnings, as above		$4,558,374.20
Realized from investments		266,442.35
Total		$4,824,816.55
Interest, rentals, etc	$4,035,908.78	
Loss on Georgia lease	110,000.00	
		4,145,908.78
Balance		$678,907.77
Dividend of Feb. 10, 1882, 3 per cent		543,900.00
Surplus for the year		$135,007.77

The report says: "The net results of the year did not come up to the expectations based on the first six months' business, which justified a dividend of 3 per cent. (paid Feb. 10, 1882). The fixed charges of the last half year were larger by $260,000 than for the first half, consequent on the additions made to the property to increase its earning capacity. In the spring of 1881 much business had been lost for want of adequate equipment; and, in view of that fact, the equipment was largely increased, especially during the months of December, 1881, and January, February and March, 1882.

"This company's one-half interest in the Georgia Railroad lease involved an outlay during the year of $110,000 in excess of the revenue derived therefrom. This amount was expended for betterments, which, it is believed, will increase the earning capacity of the road and return to this company the money so expended. After due consideration, it was concluded that it would be sound policy to charge the expenditure against the income account; and then, in case the money be hereafter refunded, it will constitute a credit to income account for the year in which refunded."

GENERAL REMARKS.

"It is expected that the extension of the Lebanon-Knoxville Branch to the Tennessee state line will be completed and open for traffic during the month of December. The road has been built first-class in all respects, and is now in operation to London, 18 miles from Livingston, the former terminus. Almost the entire grading is done, and the iron for bridge structures have been gotten out. But little of the masonry work remains to be done. The road will be open to Williamsburg, at the crossing of the Cumberland River, 48 miles from Livingston, about the middle of October. The length of the extension, when completed, will be 62 miles. It is believed that the opening of this road into East Tennessee, and the direct connection with Knoxville, will add largely to the traffic of the line from Jan. 1 next.

"But little work has been done on the Henderson bridge, the amount expended to June 30, 1882, being $60,161.19. It is expected that satisfactory arrangements will soon be made to provide the company with the funds necessary to prosecute the work to early completion. This is an enterprise of great importance to the company; its completion will bring our line from St. Louis to Nashville, Tenn., into closer relations with the important cities of Chicago and St. Louis, making direct connection between them and the Gulf by way of Nashville and Montgomery, Ala., to Pensacola, Fla., and to Mobile and New Orleans.

"The grading on the Madisonville Branch from Madisonville to Providence, 16 miles, is completed, and 10 miles of road finished and opened for business. Tracklaying on the remaining six miles will be finished, and the branch opened for traffic Oct. 1.

"The construction of the Pensacola & Atlantic road has progressed rapidly. This road is to connect with the Louisville & Nashville system of roads at Pensacola with the railroads of Florida and the South Atlantic coast. Over 40 miles of the road are completed and ready for business. By the middle of October 100 miles will be in operation, and the entire line is to be finished by Jan. 1, 1883."

The lease of the Georgia Railroad, in which this company is jointly interested with the Central Railroad Company of Georgia, has, as stated in the earlier part of this report, involved an outlay on the part of this company of $110,000 for the year. In this connection the following extracts from the report of the General Manager of that road will be of interest. The report says:

"'While the result of operations has not been as satisfactory as was expected, there is nothing to excite distrust in the future. The Georgia Railroad derives about 60 per cent. of its revenue from local sources. The country tributary to its line shows signs of healthy growth, and the reflex cannot be otherwise than happy. The expenses for the year just closed have been unusually heavy. The exhibit submitted shows that expenditures of every description other than for the account of the Athen Extension have been charged to operating expenses. The value of improvements, or rather betterments, made during the year, amount to $207,370.67. This sum, plus the cash value of material on hand, increase the amount to $365,395.87. If the value of additions made and material on hand be considered proper assets, the result of operations for the year just closed will show a profit on the lease instead of an apparent loss.'

"Besides the amounts expended in the purchase of the Louisville, Cincinnati & Lexington Railway, and the construction of the Lebanon-Knoxville Branch extension and the Madisonville Branch, large expenditures have been made during the year for steel rails, locomotive engines, freight cars, passenger coaches, depots, wharves, terminal facilities, etc.

"In conclusion, it is gratifying to the board of directors to be able to state that all the roads in our system are materially improved in physical condition and well supplied with rolling stock and all necessary appliances for the transaction of a large business in the future. The stockholders should, however, remember that when the large purchases of the railroads and capital stock of other companies were made in 1879, 1880 and 1881, this company had but little cash capital, and the purchases were hence made on credit, the roads purchased being at the time in bad condition; and that to pay for the property purchased and to put the roads in proper shape for active business necessarily required large outlays of money. But in view of the growing prosperity of the country at large, and especially of the rapid development of the vast resources, mineral and agricultural, of the country through which our lines and their connections immediately pass, we are confident of a successful future for our company; and for the profitable results of the fiscal year 1882-83 we have abundant promise in the excellent crops, especially in the Southern country, where our interests chiefly lie.

"To the officers and employés of the company credit is due for their fidelity to the interests committed to their charge."

Baltimore & Hanover.

This company owns a road from Black Rock to Emory Grove, Md., 20 miles, connecting the Western Maryland and the Hanover Junction, Hanover & Gettysburg roads. Train service is furnished by the last-named company at agreed rates. The report is for the year ending March 31, 1882.

The general account is as follows:

Stock paid in		$88,805.30
Bonds		120,000.00
Profit and loss		20,741.93
Total		$229,547.23
Cost of property	$225,909.96	
Cash on hand	3,637.27	
		229,547.23

The road has cost only $11,295 per mile, and its capital account is very light.

During the year passenger train cars ran 71,867 miles, and freight cars 371,345 miles over the road. The passengers carried were 32,930; passenger miles, 526,543; the average rate being 2.52 cents per passenger-mile, and the average passenger journey, 16 miles. The total freight tonnage was 42,519 tons, of which 13,113 tons were from way stations, and 29,406 tons to and from Baltimore. The ton-miles were 597,668, the average receipt per ton-mile being 3.71 cents.

The earnings and income account for the year were as follows:

Earnings ($2.197 per mile)		$43,947.40
Expenses (58.3 per cent.)		25,639.80
Net earnings ($915 per mile)		$18,307.60
Sundry receipts		1,460.00
Balance, April 1, 1881		2,747.32
Total		$22,514.92
Interest	$7,332.09	
Floating debt, old claims, etc	5,618.23	
Improvements of road	5,927.33	
		18,877.65
Cash on hand, April 1, 1882		$3,637.27

During the year many improvements were made by filling trestles, putting in additional sidings, widening cuts and fills, ditching and similar work. The road has maintained itself, paying all expenses and charges and leaving a balance for improvements.

The contract for operating the road has been renewed at former rates, 35 cents per train-mile run, and for the milk train, $10 per round trip.